

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Studless—Solid Metal Lath & Plaster— $\frac{3}{8}$ " riblath—100:2-100:2 gypsum sand plaster wt 18 width 2"	T-162-OSU (f) NBS-527-F51 (s)		38	127	Good performance—adaptable in areas of large volume constr	a-1031
1 hr.	Chan Stud—Solid Metal Lath & Plaster— $\frac{3}{4}$ " cr chan 16" o.c.—2.5# dm met lath—100:2-100:2 gypsum sand plaster wt 18 width 2"	MLA T-129' OSU (f) NBS-523 F45 (s)		37	133	Standard solid partition design	a-1031
1 hr.	Studless—Solid Gypsum Lath & Plaster— $\frac{1}{2}$ " long length ROCKLATH— $\frac{3}{4}$ " 100:1-100:2 gypsum sand plaster wt 16 width 2"	T-118-7 & 8-OSU (f) NBS-510 F29 (s)		34	120	Ideal for volume projects when fitting or cutting is minimum	a-1031
2 hrs.	Chan Stud—Solid Metal Lath & Plaster— $\frac{3}{4}$ " cr chan 16" o.c.—3.4# dm met lath—STRUCTO-LITE (Type R) plaster wt 12 width 2½"	UL Des 19-2 hr (f)	N/A		137	2-hr. rating also with 2" of wood fiber plaster per NBS 71 table 7	a-1031

wall furring applications

—	$\frac{3}{4}$ " C.R. Channels 16" o.c., cross braced, $\frac{3}{8}$ " Insulating ROCKLATH and BRACE-TITE® Clips, $\frac{1}{2}$ " sanded basecoat plaster, lime putty finish	—	—	—	185	Isolation adequate; good vapor barrier	a-1031
—	$\frac{3}{8}$ " Long Length Insulating ROCKLATH, supported by $\frac{3}{4}$ " horizontal channels 36" o.c., $\frac{3}{4}$ " sanded basecoat plaster, lime putty finish	—	—	—	203	Limited to 12" ceiling height. Control joints should be used 20' o.c.	a-1031
—	$\frac{3}{4}$ " C.R. Channels 16" o.c., cross braced, 3.4# diamond mesh metal lath, $\frac{3}{8}$ " sanded basecoat plaster, lime putty finish coat	—	—	—	203	No vapor barrier; isolation adequate	a-1031

description

These non-load bearing solid plaster assemblies, 2" or more thick, consisting of a lath membrane plastered both sides, are widely recognized for their fire resistance, economy and space-saving features. Three types are available:

Channel Stud—USG Cold Rolled Channels, placed vertically, act as permanent studs and are attached at the floor and ceiling by special runners. USG Diamond Mesh Metal Lath, made by slitting and expanding rust-resisting steel, is wire-tied to the studs providing an ideal, lightweight base for economical application of gypsum plasters. For greater fire resistance or increased ceiling height, solid partitions thicker than 2" may be used (see table page 2).

Studless-Metal Lath—USG $\frac{3}{8}$ " Riblath, attached at the floor and ceiling by special runners, contributes vertical rigidity and reinforcement while providing an excellent lightweight plaster base. Nesting and wire tying of ribs on adjacent sheets makes the Riblath a nearly continuous reinforcing membrane which requires temporary bracing only until the partition has been plastered on one side. The $\frac{3}{8}$ " Riblath for this assembly is made in a herringbone mesh pattern with longitudinal ribs— $\frac{3}{8}$ " V-shaped ribs at 4½" intervals and inverted intermediate $\frac{3}{16}$ " ribs.

Studless-Gypsum Lath—Long Length ROCKLATH* Plaster Base, $\frac{1}{2}$ " V-edge, is held vertically by floor and ceiling runners and plastered on both sides. Temporary bracing is required until the assembly has been partially plastered.

function and utility

These assemblies are ideal for use wherever non-load bearing plastered partitions are desired and particularly where space saving and economy are the most important factors. Their features are:

Economical—solid partitions are accepted as the most economical fire-resistant plaster partitions. The 2" thickness saves space and costly floor area.

Performance—nationally accepted and used in schools, dormitories, apartments and hotels as a functional, economical partition construction requiring little maintenance.

Lightweight—in structural design the dead load ranges from 12 to 23 lbs. per sq. ft. depending on type of plaster aggregate and plaster thickness used.

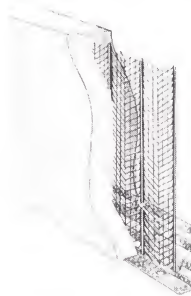
Fire Protection—constructed of incombustible components, these assemblies have established fire resistance ratings of up to two hours (see table above).

Sound Isolation—provide up to 38 STC, considered satisfactory for normal requirements within offices, apartments and hotel suites.

Strength—highly resistant to impact damage. Additional strength and rigidity may be gained by increasing the plaster thickness (see U.S.G. Gypsum Plasters Folder in this series).

limitations

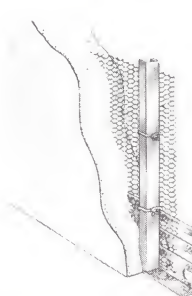
1. Non-load bearing.
2. Limiting height: Studless—Metal Lath 10'; Studless—Gypsum Lath 12'; Channel Stud (see table page 2).
3. Door frames must be anchored to prevent twisting and impact vibrations (see Specifications, page 10).
4. Solid partitions, like all other non-load bearing partition constructions, should be isolated from reinforced concrete columns and beams. The partitions will not resist stresses transmitted to them by movement or deflection of the structural components of the building.
5. Partitions are not recommended for use with flat plate reinforced concrete floor-ceiling constructions, unless isolated from the flat plate.



studless—
metal lath



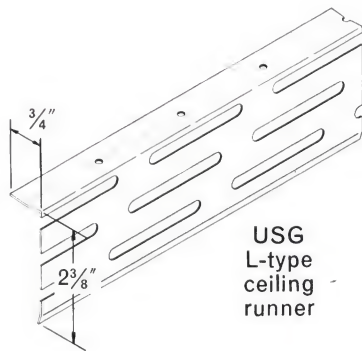
studless—
gypsum lath



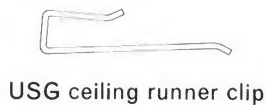
channel stud—
metal lath

*Reg. U.S. Pat. Off.

components



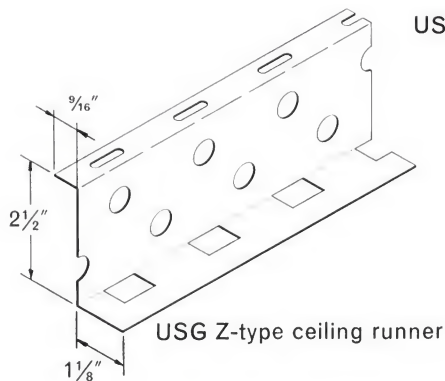
USG
L-type
ceiling
runner



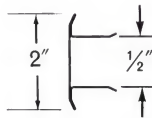
USG ceiling runner clip



USG bracing clip



USG Z-type ceiling runner



USG 2"
partition terminal

channel stud thickness—limiting heights

partition construction	thickness	limiting ceiling ht.
3/4" Cold Rolled Channels Diamond Mesh Lath & Plaster	2"	12'-0"
3/4" Cold Rolled Channels Diamond Mesh Lath & Plaster	2 1/4"	14'-0"
3/4" Cold Rolled Channels Diamond Mesh Lath & Plaster	2 1/2"	16'-0"
1 1/2" Cold Rolled Channels Diamond Mesh Lath & Plaster	2 3/4"	18'-0"
1 1/2" Cold Rolled Channels Diamond Mesh Lath & Plaster	3"	20'-0"
1 1/2" Cold Rolled Channels Diamond Mesh Lath & Plaster	3 1/2"	22'-0"

NOTE: No limitation on length of this partition for heights under 12'-0". Length between columns, or walls, shall not be greater than 2 times the partition height when the latter exceeds 16'-0"; nor greater than the height when it is 24'-0" or more. Heights over 20'-0" shall have horizontal girts every 6'-0".

see "plaster bases" product catalog for full description on accessories & sizes



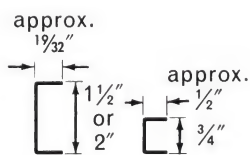
USG
1-A
expanded
corner bead



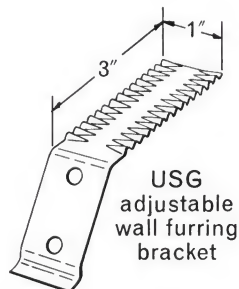
USG
4-R
expanded
corner bead



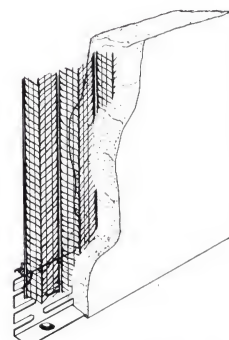
USG
cornerite



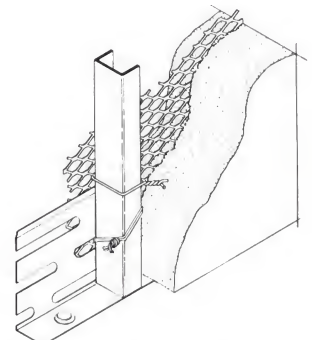
USG cold rolled
channels



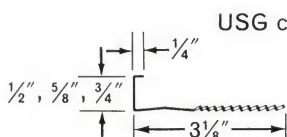
USG
adjustable
wall furring
bracket



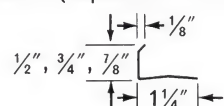
studless—metal lath



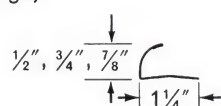
channel stud—metal lath



#66 square edge

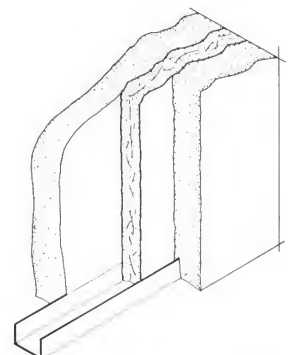


#60 semi-square edge



#4 or #138 quarter round

USG casing beads (expanded or short flange)

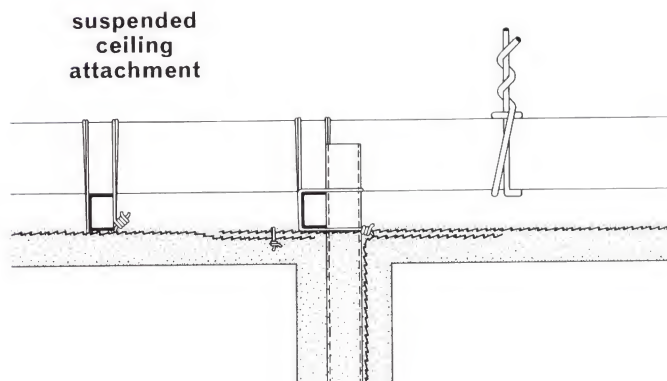
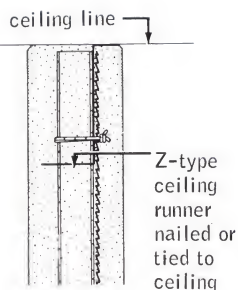
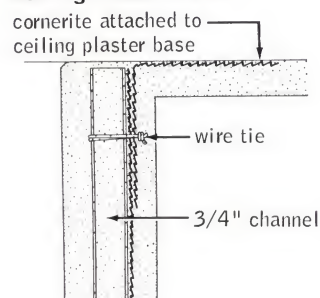


studless—gypsum lath

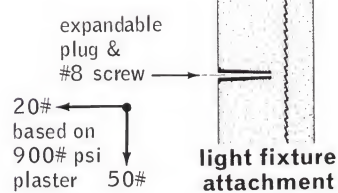
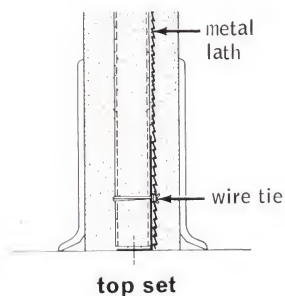
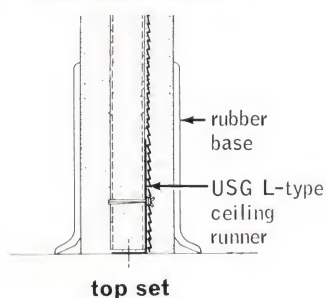
details/channel stud

scale: 3" = 1'-0"

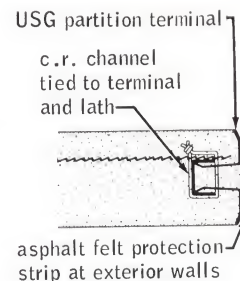
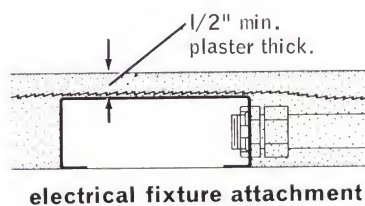
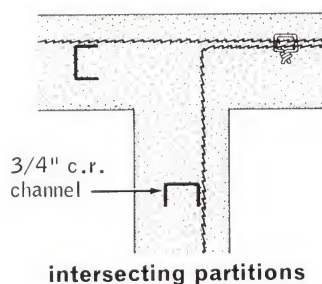
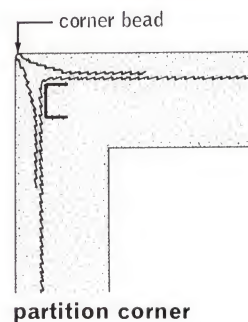
ceiling attachment



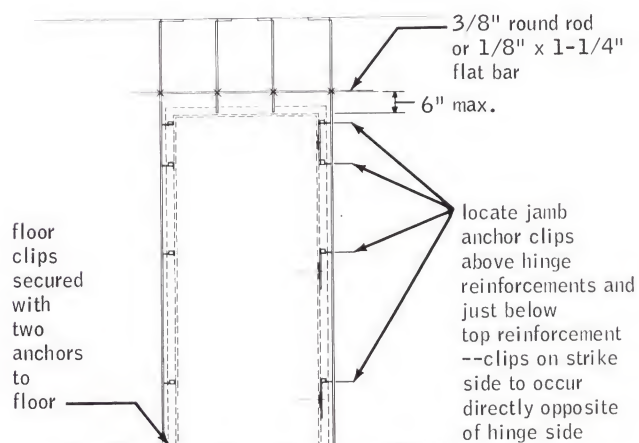
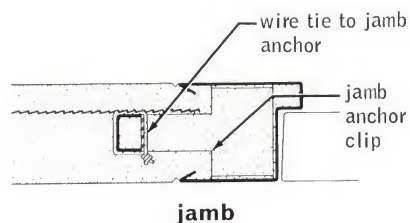
floor attachment



intersecting walls

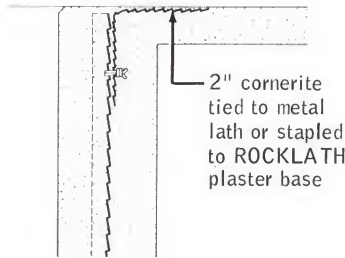


metal door frame details

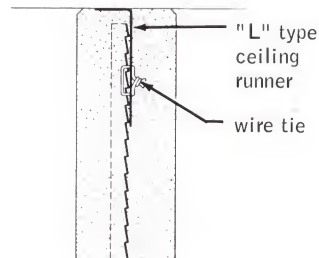
elevation
cross section thru frame

details/studless—metal lath

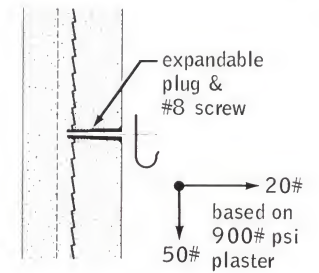
scale: 3" = 1'-0"



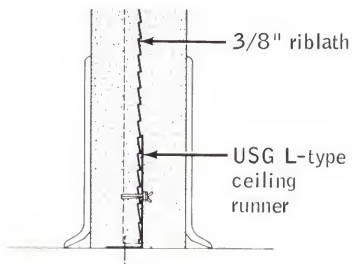
ceiling attachment



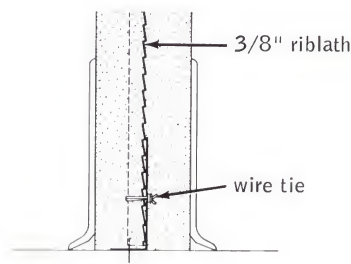
ceiling attachment



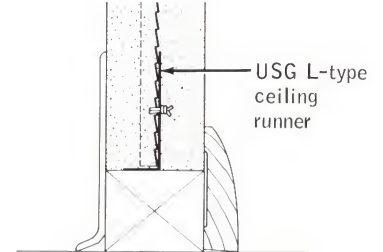
light fixture attachment



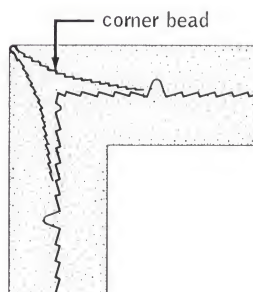
top set



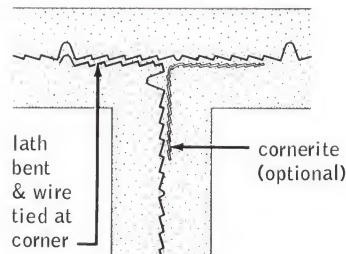
top set



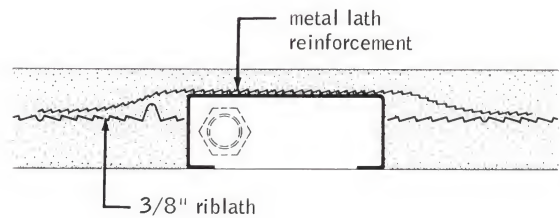
wood base



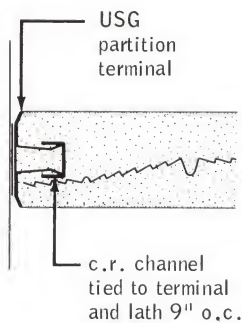
corner



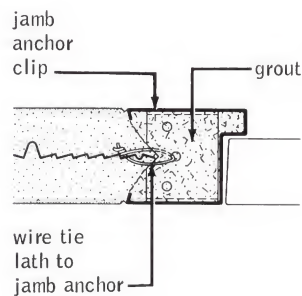
partition intersection



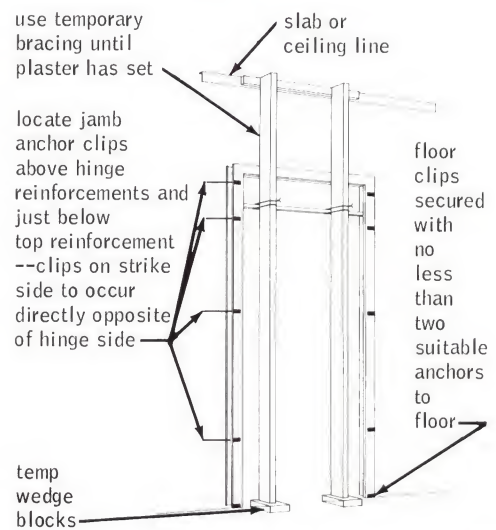
outlet box



wall intersection

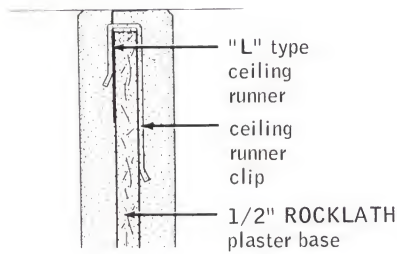


metal door jamb

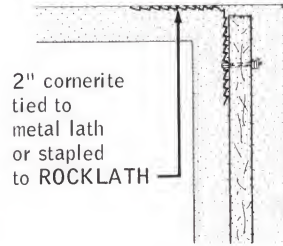


elevation—cross section thru frame

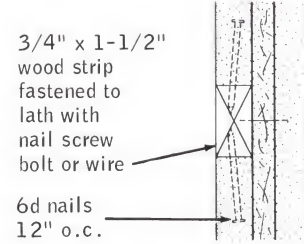
details/studless—gypsum lath



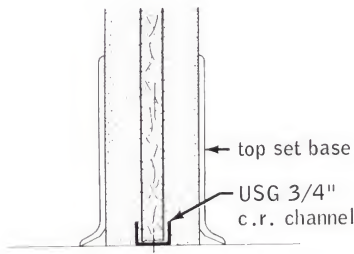
ceiling attachment



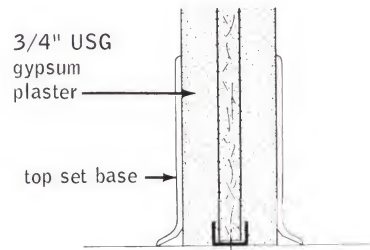
ceiling attachment



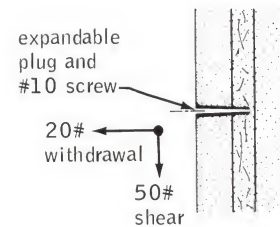
cabinet fixture attachment



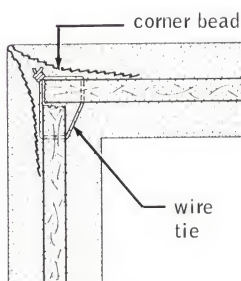
top set base



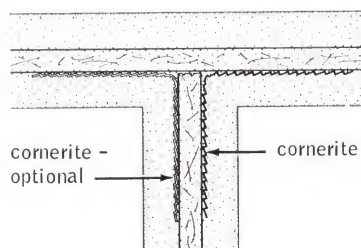
top set base



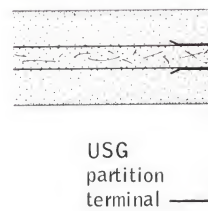
light fixture attachment



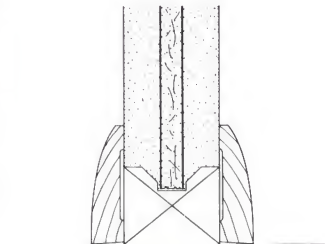
corner



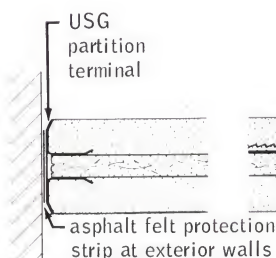
partition intersection



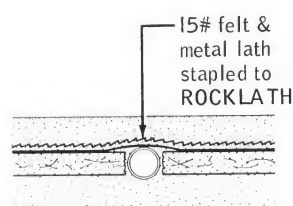
partition terminal



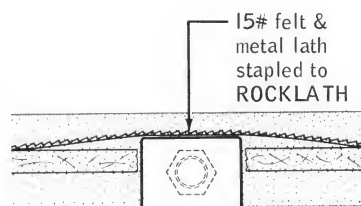
wood base & wood runner



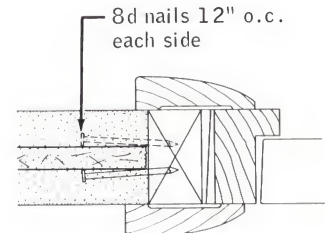
wall intersection



electrical conduit



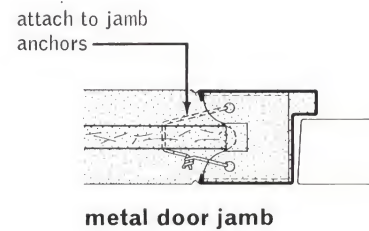
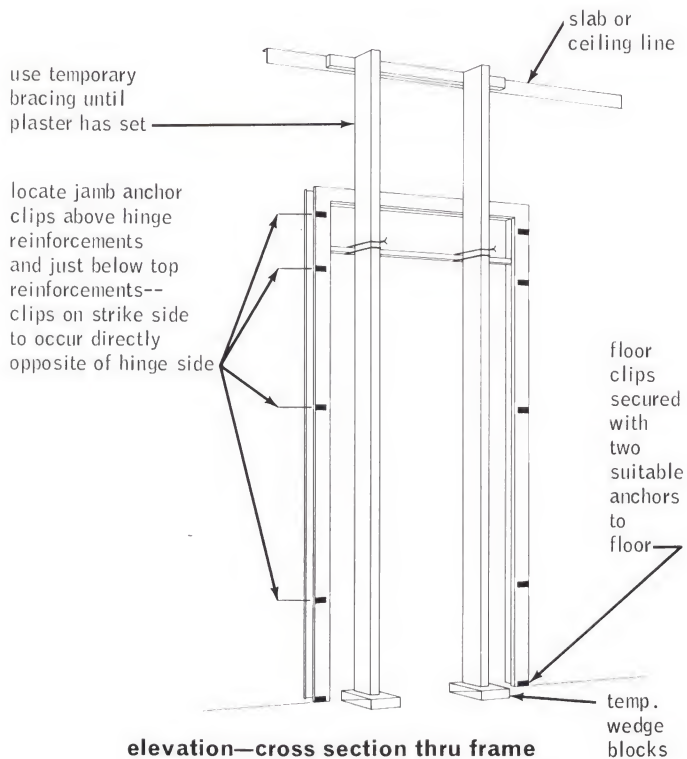
outlet box



integral wood door frame

details/studless—gypsum lath

scale: 3" = 1'-0"



exterior wall furring

It is recommended that all exterior walls be furred. Asphaltic or bituminous bonding agents are not recommended as a plaster base. $\frac{3}{8}$ " square edge Long Length Insulating ROCKLATH and plaster provide structural and economic advantages for special furring conditions.

In this system USG Adjustable Wall Furring Brackets, spaced not more than 36" o.c. and properly secured to the exterior wall, provide the support for $\frac{3}{4}$ " channels placed 36" o.c. horizontally. Long Length Insulating ROCKLATH is wire-tied to channels and plaster is applied to $\frac{3}{4}$ " grounds.

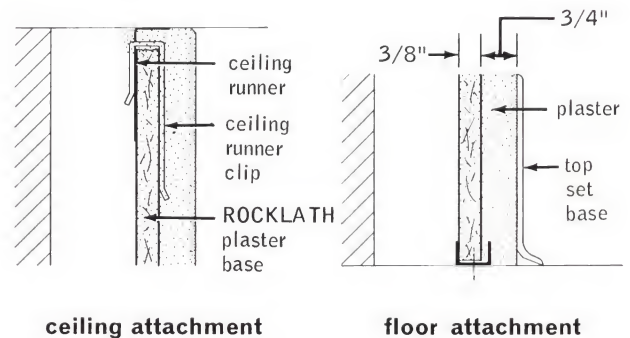
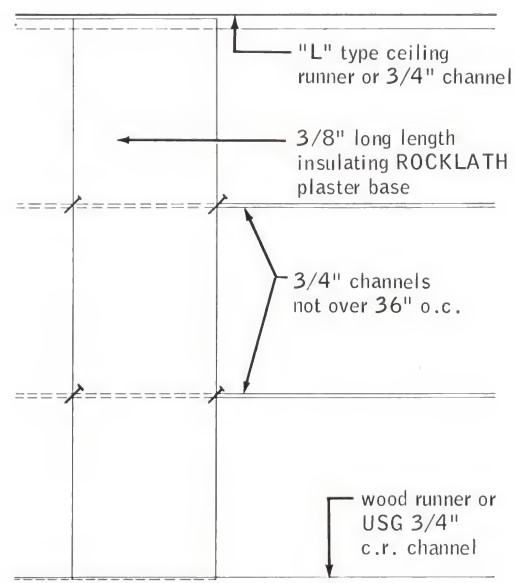
function and utility

The same space-saving features, fire protection and other economies found in the solid ROCKLATH and plaster partition apply to this exterior wall furring system. In addition, when Insulating ROCKLATH Plaster Base is used its features include:

1. Condensation control.
2. Protection of interior wall surface from moisture seepage.
3. Insulation and vapor barrier.
4. A degree of isolation from structural movement.

limitations

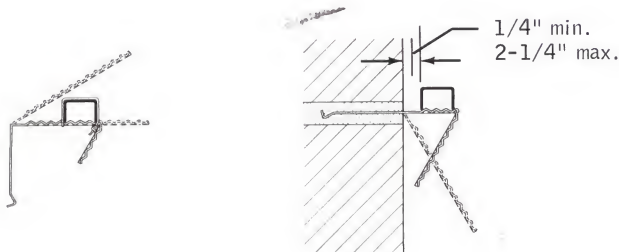
1. Long Length Insulating ROCKLATH plaster base is not economical for cut-up wall areas containing a large percentage of openings.
2. Limiting height of this system is 12'-0".



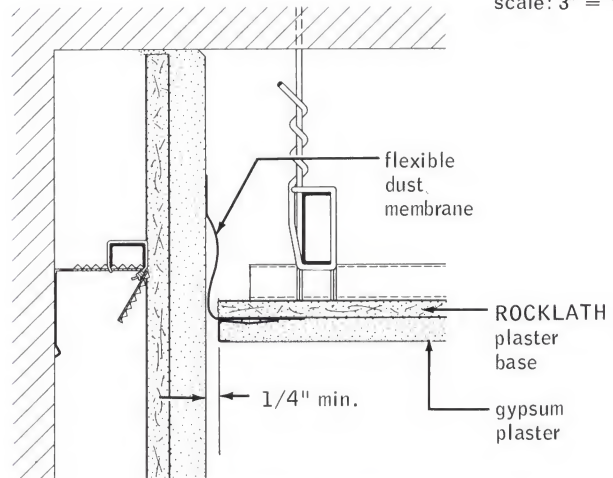
details/studless—gypsum lath

adjustable wall furring brackets

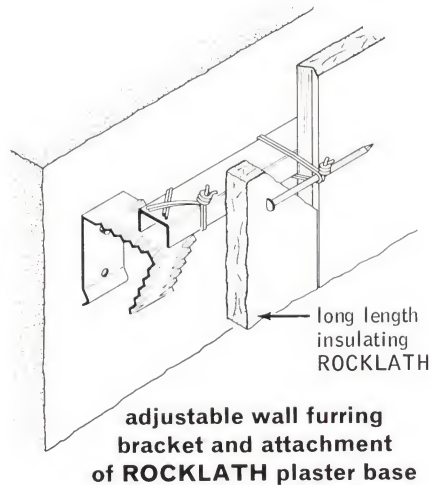
1. Wall furring brackets should be attached not more than 36" o.c. horizontally and vertically.
2. After attachment, bend bracket to horizontal position.
3. Wire-tie plumbed channel to bracket $\frac{1}{4}$ " min. ($2\frac{1}{4}$ " max.) from wall.
4. Bend excess of bracket down.



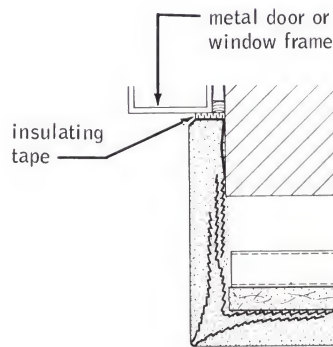
scale: 3" = 1'-0"



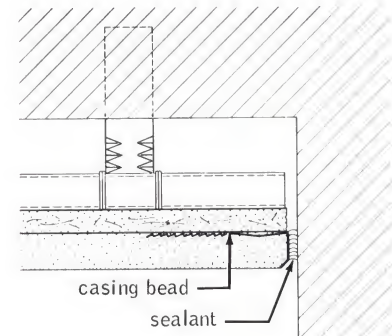
ceiling isolation
at furred wall



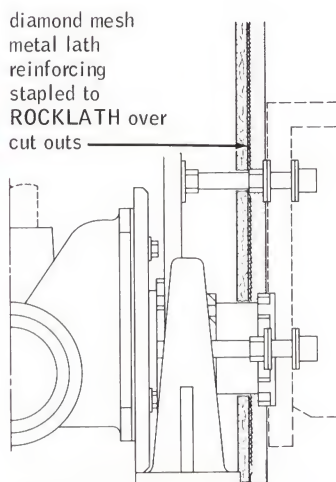
adjustable wall furring
bracket and attachment
of ROCKLATH plaster base



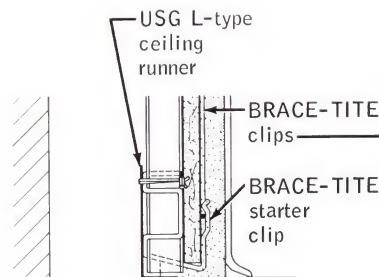
jamb section at
metal door or window



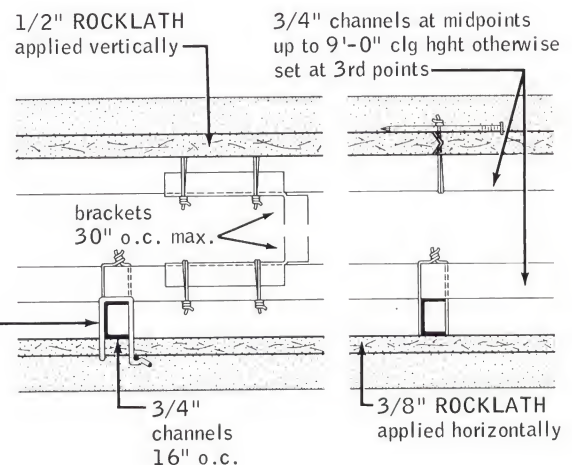
column or
wall isolation



detail at typical
closet carrier



top set



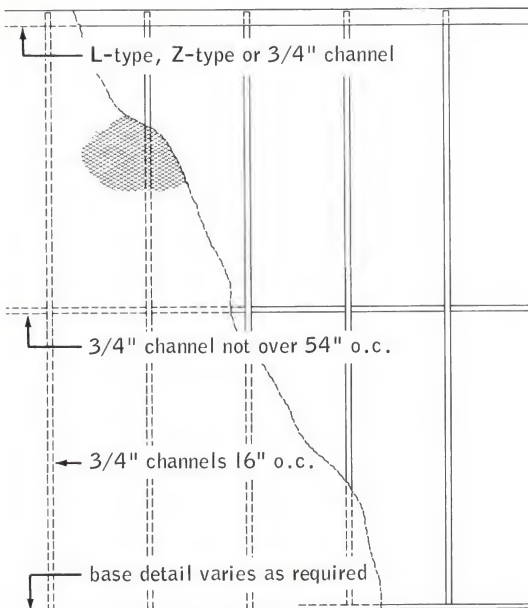
core wall horizontal section

exterior wall furring/channel stud

It is recommended that all exterior walls be furred. Asphaltic or bituminous bonding agents are not recommended as a plaster base. Channel studs, metal lath and plaster provide an exterior wall furring system that offers the same space-saving features, economical construction and readily decorated interior wall surface found in the related solid plaster partition.

This system consists of three horizontal $\frac{3}{4}$ " channels, located not more than 6" from the floor and ceiling, and one at the midpoint between floor and ceiling attached to the wall with USG Adjustable Wall Furring Brackets not more than 36" o.c. Vertical channels are wire tied to these horizontal members, with spacing determined by the maximum allowable spacing of supports for the type of metal lath used (see below). Metal lath is wire tied on the vertical channels and plastered to $\frac{3}{4}$ " grounds. If height exceeds 10'-0" using $\frac{3}{4}$ " channels, install additional horizontal channels spaced 4'-6" o.c. max.

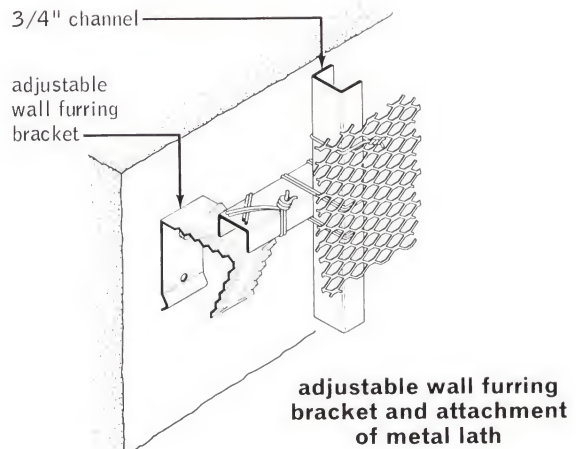
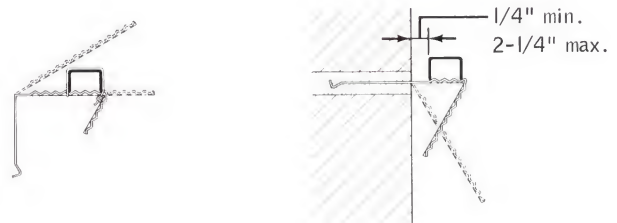
type of lath	weight per sq. yd.	maximum allowable spacing
Diamond Mesh	2.5 lb.	12"
Diamond Mesh	3.4 lb.	16"
$\frac{1}{8}$ " Z-Rib	2.75 lb.	16"
$\frac{1}{8}$ " Z-Rib	3.4 lb.	19"



elevation

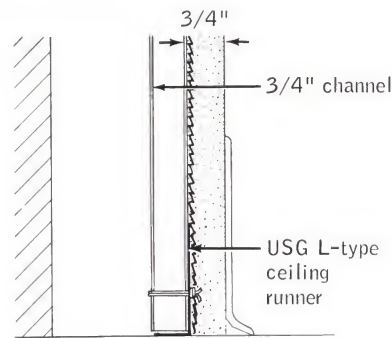
adjustable wall furring brackets

1. Wall furring brackets shall be attached not more than 36" o.c. horizontally and 4'-6" o.c. vertically.
2. After attachment, bend bracket to horizontal position.
3. Wire-tie plumbed channel to bracket $\frac{1}{4}$ " min. ($2\frac{1}{4}$ " max.) from wall.
4. Bend excess of bracket down.



floor attachment

scale: 3" = 1'-0"



top set

core walls/channel stud

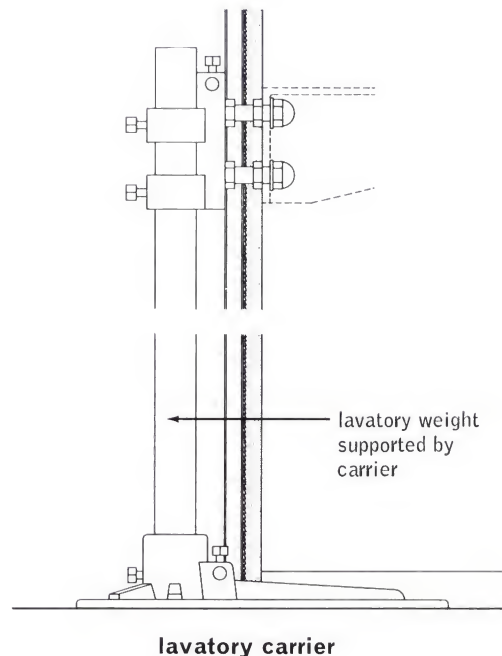
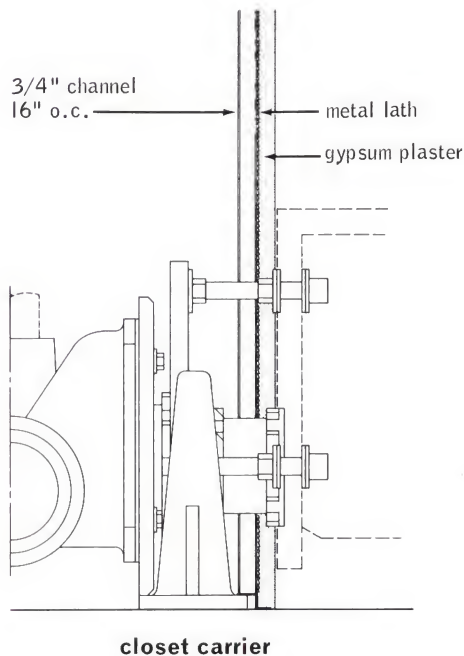
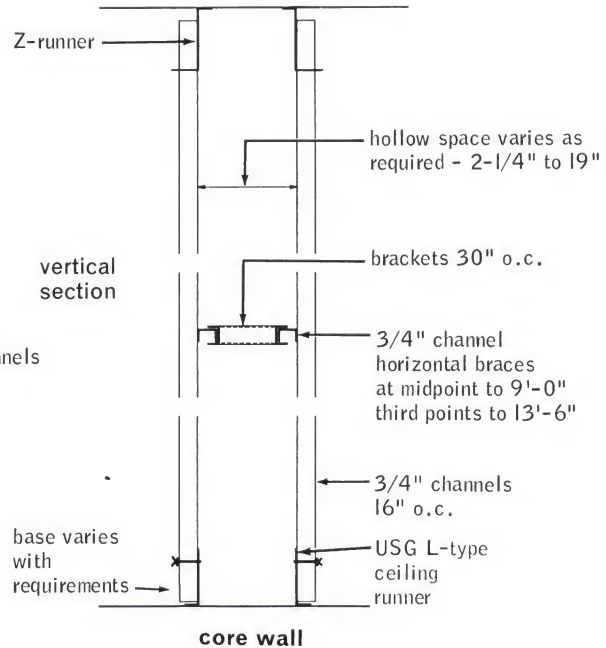
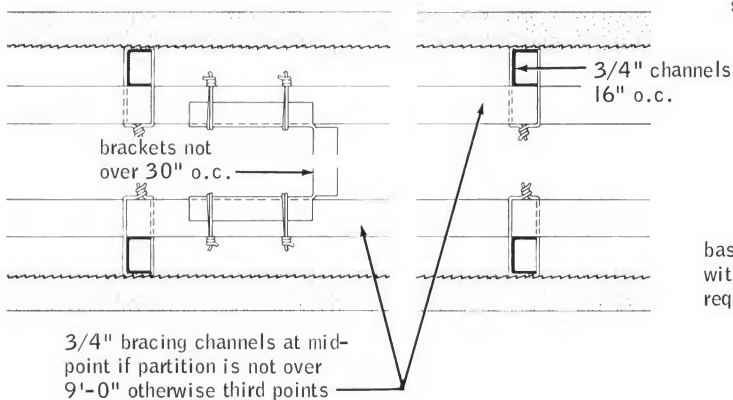
Core walls, as vertical shafts encasing the usual plumbing supply and waste lines, vent ducts and electrical conduits, require more free space than can be provided within the usual partition assembly. The channel stud core wall provides almost unlimited space for mechanical installations within the partition.

Core walls are easily constructed using channel studs and metal lath, provided proper bracing is used to compensate for the stress skin action of the one side. The non-lathed side of the studs shall be stiffened with $\frac{3}{4}$ " channel horizontal braces spaced vertically at midpoint to 9'-0", third points to 13'-6"; and $\frac{3}{4}$ " channel bracket mid-girts spaced not over 30" o.c. horizontally (see detail).

scale: $1\frac{1}{2}" = 1'-0"$

horizontal section

scale: $3" = 1'-0"$



specifications

notes to architect

1. In cold weather, all glazing should be completed and the building must be heated to a minimum of 55°F. Before lathing, ventilation should be provided to carry off excess moisture.

2. Steel door frames should be fabricated from 16-ga. metal, minimum, shop primed. The opening at the trim return should be accurately formed to the overall thickness of the partition.

Base plates, designed with two anchor holes spaced a minimum of 3" apart to prevent rotation, should be securely welded to the flanges to dampen door impact vibrations. Floor anchorage should be by two power-driven anchors or equivalent per plate.

Four jamb anchors should be provided on each jamb, welded to the trim returns (see details) and wire-tied to the lath. Separate bracing should be used to keep the frame in alignment.

Grouting of the door frame is required on all installations. When gypsum lath is used, the grout should be raked out to allow the lath and plaster to be inserted into the frame. When metal lath is used, the frames should be grouted solid with mortar when the scratch coat of plaster is applied. Under no conditions should lath and plaster terminate against trim return of frame.

Door closers are recommended on all oversize doors and doors where the weight of the door (including attached hardware) exceeds 50 lbs.

3. Lath and plaster surfaces (non-load bearing) will not resist stresses imposed by structural movement, and are subject to dimensional variations due to changes in temperature and humidity. It is recommended that lath and plaster surfaces be isolated from all structural elements, and control joints be specified where:

- a. a partition abuts any structural element or dissimilar wall or ceiling assembly.
- b. the partition construction changes within the plane of the partition.

4. Holes cut in a thin lath and plaster membrane, such as door frames, borrowed lights, etc., cause a concentration of stresses in the plaster. The use of cornerite, striplath and self-furring diamond mesh lath is recommended at the weakened area to distribute concentrated stresses.

5. When gypsum lath is used, the minimum thickness of plaster over the back of electrical outlets should be 1/2"; over electrical conduits or cables a full 3/8" thickness of basecoat plaster. Accordingly the maximum size for conduit and pipe should be 1"; switch boxes and convenience outlets should not exceed 1 1/2" in depth including plaster ring. The back of all electrical boxes conduit and cables should be covered with 15-lb. felt under metal lath fastened to the ROCKLATH Plaster Base.

6. When metal lath is used, the minimum thickness of plaster over conduit, pipe and the back of electrical outlets should be 1/2". The back of all electrical boxes should be reinforced with metal lath.

7. Where a plaster surface is flush with metal, metal bucks metal windows, or metal base, the plaster should be grooved between the two materials.

8. **Fixture Attachment**—Lightweight fixtures and trim should be installed by drilling set dry plaster to a minimum depth of 3/4" and inserting a plastic plug or other expandable anchor for anchorage of attachment screws.

Cabinet and shelving grounds should consist of 1 1/2" wood strips milled to actual plaster thickness and securely attached to lath by wire tying, nailing or bolting. When gypsum lath is used, 6d (minimum) coated nails spaced 12" o.c. should be driven 5/8" into both edges (see detail, page 5). Heavy fixture attachment is not recommended.

9. **Ceramic Tile**—Where ceramic tile over portland cement basecoat plaster is required, metal lath should be used as a plaster base. Portland cement-lime plaster should be applied in scratch and brown coats to 5/8" grounds over lath on tile side. Metal lath should be tied to the tile side of the channel studs. Gypsum plaster may be applied to portland cement scratch coat keys on side opposite ceramic tile or ceramic tile may be adhesively attached over the finished gypsum plaster in accordance with the adhesive manufacturer's specifications.

10. To retain maximum sound isolation, the integrity of the partition should not be voided by openings such as electrical outlets, medicine cabinets, vents, etc., that create sound leaks. Use sand aggregate only, do not use lightweight aggregates.

11. Where corrosion due to high humidity and/or saline content of aggregates is possible, the use of zinc alloy accessories is recommended.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

materials

See U.S.G. product folders in this series:

Gypsum Plasters Folder for Plaster Specifications.

Plaster Bases & Accessories Folder for General Lathing Specifications.

Paint Products Folder for Paint Specifications.

All materials herein specified shall be manufactured by the United States Gypsum Company.

a. Metal Lath shall be (2.5 lb.) (3.4 lb.) Diamond Mesh, 3.4 lb. 3/8" Riblath 27" x ceiling height.

b. ROCKLATH Plaster Base shall be (1/2" V-edge, Long Length ROCKLATH for solid partition) (3/8" square edge, Long Length Insulating ROCKLATH for exterior wall furring).

c. USG Z-Type Ceiling Runner.

d. USG L-Type Ceiling Runner.

e. USG Ceiling Runner Clips.

f. USG Cold Rolled Channels 3/4", 1 1/2", 2".

g. USG Bracing Clips.

h. USG Partition Terminal.

i. USG Corner Bead (specify type from page 2).

j. USG Casing Bead (specify type from page 2).

k. USG Adjustable Wall Furring Bracket.

l. USG Cornerite (2"x2") (3"x3").

m. USG 4" Striplath.

n. 18-ga. tie wire.

channel stud partition system erection

Floor and ceiling runner shall be of the type and size shown on the plans or as herein specified and shall be aligned accurately according to the partition layout. Attachment to concrete shall be with concrete stub nails or power driven anchors; to ceiling grillage with a double strand of 18-ga. tie wire; to plaster or gypsum lath with toggle bolts.

Studs shall be $\frac{3}{4}$ " c.r. channel, and the partition thickness two inches unless otherwise noted. Stud shall be spaced not to exceed 16" o.c. and shall be of sufficient length to properly engage the ceiling runner and the floor runner. A stud shall be wire-tied at each jamb of steel or wood door frames and at openings cased with the USG Partition Terminal. Studs shall be securely attached to the steel door frame, by wire-tying to tongues of the jamb anchor clips.

A horizontal reinforcement shall be used over all openings and shall consist of a $\frac{3}{8}$ " round rod or a $\frac{1}{8}$ " by $1\frac{1}{4}$ " flat bar. Saddle tied to each vertical stud, the bar or rod shall extend out to the first stud beyond the frame.

Core walls shall consist of two lath and plaster diaphragms supported by a channel iron grillage. Runners shall be provided at each face. A double row of $\frac{3}{4}$ " c.r. channel studs shall be spaced not to exceed 16" o.c. and shall be of sufficient length to properly engage the floor and ceiling runners. Aligning $\frac{3}{4}$ " channels shall be saddle-tied to the inside face at each stud. A pair of aligning channels shall be spaced vertically at midpoint on partitions up to 9'-0" high and at third points on partitions to 13'-6". The channel girts shall be tied together by forming brackets of $\frac{3}{4}$ " channels, spaced 30" o.c. along the horizontal aligning channels. Legs of the brackets and channels shall be nested and securely wire-tied.

Wall furring shall consist of $\frac{3}{4}$ " c.r. channel studs erected vertically 16" o.c. Studs shall be secured by engaging floor and ceiling runners or by saddle tying with 3 loops 18-ga. tie wire to horizontal $\frac{3}{4}$ " c.r. channel girts spaced not to exceed 4'-6" o.c. The horizontal girts shall be secured to the masonry back-up at 36" o.c. by saddle-tying the channel to serrated leg of USG Adjustable Wall Furring Brackets with 18-ga. tie wire.

Metal lath shall be applied with long dimension of sheet across supports. Ends of all lath shall be lapped not less than 1". If end laps are made between supports, they shall be adequately laced or tied with 18-ga. tie wire. Sides of lath shall be lapped not less than $\frac{1}{2}$ " and shall be placed so that lower sheets overlap upper sheets. Wherever possible, ends of lath in adjacent courses shall be staggered. Metal lath shall be secured to all supports, with 18-ga. tie wire at intervals not exceeding 6". At all interior angles, metal lath shall be formed into corners and carried out onto abutting surface and adequately secured.

studless—metal lath partition erection

Floor runner shall be securely attached 24" o.c. Ceiling runner shall be attached 16" o.c. and located so that the USG $\frac{3}{8}$ " Riblath will be positioned in the center of the partition.

Attachment to concrete shall be with concrete stub nails or power-driven anchors; to ceiling grillage with a double strand of 18-ga. tie wire; to plaster or gypsum lath with toggle bolts.

Riblath shall be erected vertically and securely wire-tied 8" o.c. to floor and ceiling runner. Wire-tie nested edges of sheets 12" o.c. and securely tie riblath to jamb inserts of door frames. At all interior angles, metal lath shall be formed into corners and carried out onto abutting surface, and adequately secured.

Partition terminals and cased openings shall be finished with USG Partition Terminal wire-tied securely in place.

Temporary bracing shall not be less than $\frac{3}{4}$ " c.r. channels placed horizontally near partition mid-height and tied to riblath 24" o.c. and with $1\frac{1}{2}$ " angle braces placed vertically not over 6' o.c. Wedge vertical braces at top and bottom and tie horizontal $\frac{3}{4}$ " c.r. channel to hold lath in place. Bracing shall remain in place until brown coat of plaster on side opposite bracing has set.

studless—gypsum lath partition erection

Floor runner shall be securely attached 24" o.c. Ceiling runner shall be attached 16" o.c. and located so that the ROCKLATH plaster base will be positioned in the center of the partition.

Attachment to concrete shall be with concrete stub nails or power-driven anchors; to ceiling grillage with a double strand of 18-ga. tie wire; to plaster or gypsum lath with toggle bolts.

The $\frac{1}{2}$ " Long Length ROCKLATH shall be cut in length to allow $\frac{1}{4}$ " minimum and $1\frac{1}{4}$ " maximum top clearance at the ceiling. Erect vertically with the V-joint edges brought into close contact with adjacent edge. Attach ROCKLATH to floor runner and securely clip to ceiling runner with two USG Ceiling Runner Clips per board. Wire-tie ROCKLATH securely to jamb inserts of door frames. ROCKLATH base having cut vertical edges shall be used only at ends of partitions or at door frames and not in central portion of partition.

Temporary bracing shall be not less than $\frac{3}{4}$ " c.r. channels placed horizontally and $1\frac{1}{2}$ " angle stiffener placed vertically. For partitions up to 8'-6" high, one horizontal brace shall be placed near mid-height of partition. For partitions over 8'-6" high, two horizontal braces at third points shall be used. Vertical stiffeners placed not over 6' o.c. shall be used on partitions over 6' in length. The horizontal channel shall extend full length of partition and be fastened with USG Bracing Clip or securely wire-tied at the center of lath and ends of channel. Wedge vertical stiffeners at top and bottom and securely wire-tie to horizontal bracing. Bracing shall remain in place until brown coat of plaster on side opposite bracing has set.

Grounds shall be set to provide $\frac{3}{4}$ " minimum thickness, including $\frac{1}{16}$ " finish.

studless—gypsum lath wall furring erection

Floor runner shall be attached 24" o.c. USG L-Type Ceiling Runner shall be attached 16" o.c. to the construction above as required, plumbed up from the floor runner, or a furring channel shall be installed 6" from top as specified below.

USG Adjustable Wall Furring Brackets, with serrated edges up, shall be attached to masonry walls not over 4" from columns or other abutting construction and not over 36" o.c. horizontally and vertically, and as required above and below windows, using (one 2" cut nail in mortar joints of brick clay tile, or cement block or in field of lightweight aggregate blocks) ($\frac{5}{8}$ " concrete stub nails or power-driven nails or other suitable fasteners in monolithic concrete). Fastenings shall be driven through top hole of bracket. Furring channels shall be laid horizontally on furring brackets with legs down, plumbed to a line with ceiling runner and base, and wire tied to bracket with double strand of 18-ga. tie wire. Excess bracket length shall be bent down.

$\frac{3}{8}$ " Long Length Insulating ROCKLATH shall be applied with long edges vertically and butted lightly, with foil facing the furred space. Bottom of lath shall be secured to floor runner. Top of lath shall be clipped to ceiling runner and wire-tied over a nail at edges to each intermediate horizontal channel. ROCKLATH plaster base shall be cut and fit to allow slight

clearance around window frames. 4" Striplath shall be applied over full length of all plaster base joints above and below windows.

Grounds shall be set to provide $\frac{3}{4}$ " minimum plaster thickness, including $\frac{1}{16}$ " finish.

lathing accessories

a. Cornerite (2" x 2") (3" x 3") shall be installed in all interior gypsum lath angles. Staple at the edges.

b. Metal Corner Bead No. () shall be provided on all external plaster corners, and shall be in single lengths where the length of the corner does not exceed standard stock

lengths. Fasten securely with galvanized staples, or wire ties, spaced not over 8" o.c.; stagger in two wings.

c. Casing Bead No. () shall be installed where indicated. Ends shall be accurately cut and mitered and the casing bead shall provide full plaster grounds when securely installed.

d. Reinforcing—Install a strip of self-furring diamond mesh lath over joints between dissimilar plaster bases. At all openings, reinforce gypsum lath corners by attaching a 6"x12" piece of diamond mesh lath diagonally across corners.

e. USG Partition Terminals shall be installed at partition terminals and cased openings where indicated on the drawings. Staple or wire-tie securely in place.

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (plaster, metal products); STRUCTO-LITE (plaster); ROCKLATH (plaster base).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Shaft Wall Gypsum Drywall— $\frac{5}{8}$ " SHEETROCK gypsum wallbd one side over 2" USG lamin gypsum corebd set in met J-run—met H-studs 24" o.c.—wallbd appl vert & screw att—joints fin wt 12 width 2 $\frac{3}{8}$ "	T-4422-OSU (f)		N/A	154	Fire rating also applies with IMPERIAL Plaster Base and veneer plaster surface	a-1081
2 hrs.	Shaft Wall Gypsum Drywall—2 layers $\frac{1}{2}$ " SHEETROCK gypsum wallbd appl vert one side over 2" USG lamin gypsum corebd set in met J-run—met H-studs 24" o.c.—base layer screw att—face layer lamin & screw att—joints fin wt 14 width 3"	T-4481-OSU (f)				Fire rating also applies with IMPERIAL Plaster surface; sound test based on $\frac{5}{8}$ " thick wallboard	a-1081
		TL-68-78 (s)		38	173		
3 hrs.	Shaft Wall Gypsum Drywall—2 layers $\frac{5}{8}$ " SHEETROCK gypsum wallbd appl vert one side over 2" USG lamin gypsum corebd set in met J-run—met H-studs 24" o.c.—horiz USG met fur chan 24" o.c. betw wallbd layers—both layers screw att—joints fin wt 14 width 4 $\frac{1}{8}$ "	T-4423-OSU (f)		N/A	210	Fire rating also applies with IMPERIAL Plaster Base and veneer plaster surface	a-1081

description

These lightweight, non-load bearing partition assemblies, consisting of SHEETROCK® SW Gypsum Wallboard or IMPERIAL® Plaster Base and Plaster and USG Laminated Gypsum Coreboard, are ideally suited for enclosing elevator shafts, stairwells and other vertical shafts in multi-story buildings. Easily installed from outside the shaft, these systems provide shaft enclosures that may be finished later along with interior partitions. They offer resistance to air pressures up to 15 psf, excellent fire resistance and reduced thickness and weight compared to concrete block masonry (see table above).

In these systems, USG Laminated Gypsum Coreboard panels are installed vertically between USG Metal J-Runners attached to the floor and ceiling. Panel edges are inserted in USG Metal H-studs or C-Channels spaced 24", 16" or 12" o.c. depending on design requirements. Single or double layer SHEETROCK SW Gypsum Wallboard or IMPERIAL Plaster Base and Plaster is applied to one side of coreboard. Joints are finished with a U.S.G. Joint System.

The coreboard for these assemblies has a fireproof gypsum core encased in strong gray liner paper on both sides. Panels are factory-laminated, using mineral adhesive, and are available in two thicknesses, both with beveled edges. The 2" thickness, made from two 1" coreboards in 12", 16", and 24" widths, is designed for heights up to 14 ft. A special 2 $\frac{1}{2}$ " thick, 12" wide panel, made with an additional $\frac{1}{2}$ " board in the center, is available to meet vertical spans up to 16 ft. that may be required in lobby areas and mechanical rooms.

SHEETROCK SW Wallboard for these assemblies is $\frac{1}{2}$ " or $\frac{5}{8}$ " thick with an eased radial tapered edge specially designed to overcome joint deformation. The board meets ASTM C36 and Federal Specification SS-L-30c. IMPERIAL Plaster Base, $\frac{1}{2}$ " or $\frac{5}{8}$ " thick and 4 ft. wide, has a high-strength, high-density core covered with special absorption face paper designed for veneer plastering. The board meets ASTM C588 and Federal Specification SS-L-30c. USG Metal J-Runners, H-Studs and C-Channels are formed from hot dipped galvanized steel meeting ASTM A446-67, Grade A with 1 $\frac{1}{4}$ oz. per sq. ft. zinc coating.

function and utility

Versatile Performance—These systems are designed and tested for 20,000 psi maximum flexural stress plus $\frac{1}{3}$ allowance for air pressure load without exceeding L/240 deflection. They offer a wide range of product and installation combinations to meet performance requirements: vertical heights up to 16 ft.; 12", 16", 24" stud spacing; air pressure loading of 5, 7 $\frac{1}{2}$, 10, 15 psf; galvanized steel accessories in various gauges (see Design Data Tables).

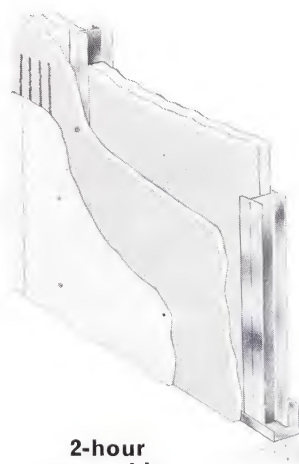
Fire Resistance—Incombustible components offer fire ratings up to 3 hours.

Lightweight—Weighs considerably less than typical 4" to 6" concrete block masonry. In high-rise buildings this can permit substantial savings in structural steel.

Economical—Construction erects faster than other types of shaft walls. Temporary shaft enclosures may be eliminated. Utilizes low-cost materials and a minimum number of components. These thin systems save space and costly floor area compared to thicker concrete block masonry.

limitations

1. Non-load bearing.
2. These shaft walls should not be used where exposed to abnormal moisture or excessive humidity or temperature.
3. Horizontal electrical or mechanical services not recommended unless furred construction is used.
4. Sliding type doors should be independently mounted.
5. Stud and runner thickness, stud spacing, wind loading and maximum flexural stress shown in the Design Data Tables should not be exceeded.
6. With veneer plaster and when shaft walls are over 12 ft. high or when 3-hour fire-rated assembly is used, two-coat plastering is required.

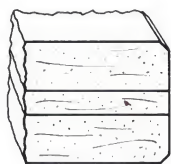


2-hour assembly

components



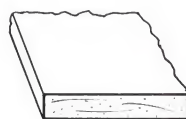
2" USG laminated gypsum coreboard



2 1/2" USG laminated gypsum coreboard



SHEETROCK SW gypsum wallboard

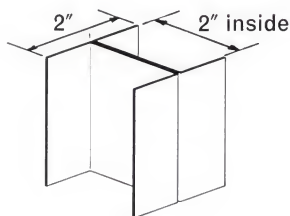


BAXBORD gypsum backing board

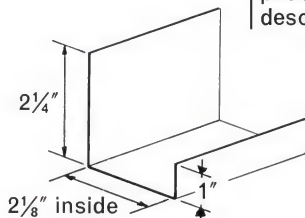


IMPERIAL plaster base

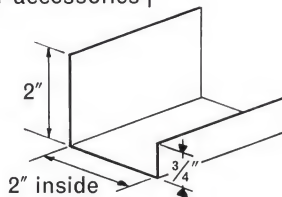
see "gypsum wallboard, joint treatment & plaster bases" product catalogs for full description on accessories



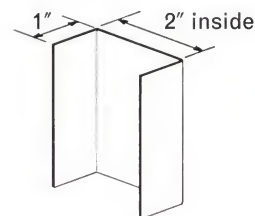
USG metal H-stud (1)



USG metal J-runner (1)



USG metal J-strut (1)



USG metal C-channel (1)



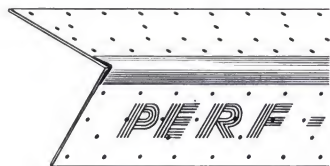
3/8" USG brand screw—type S-12—pan head



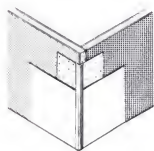
1" USG brand screw—type S-12—bugle head also in 1 5/8", 2 3/8" & 3" lengths



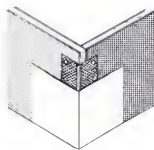
1" USG brand screw—type S—bugle head also in 7/8" & 1 1/8" lengths



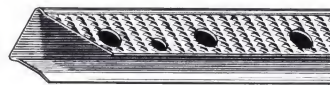
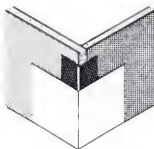
no. 100 PERF-A-BEAD* corner reinforcement—drywall system



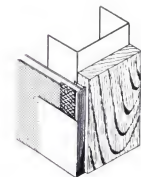
DUR-A-BEAD* corner reinforcement drywall system



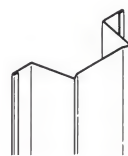
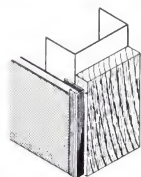
no. 900 USG corner reinforcement drywall or plaster system



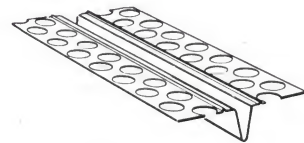
no. 200-A USG metal trim drywall system



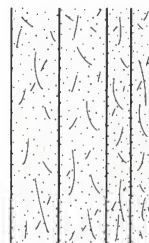
USG metal trim drywall system



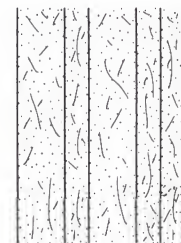
USG metal furring channel



USG control joint #093



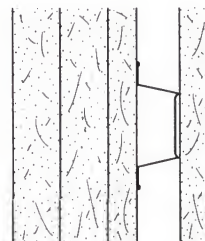
3" 2 hrs T-4481 OSU



3 1/2" 2 hrs est.



2 5/8" 1 hr T-4422 OSU

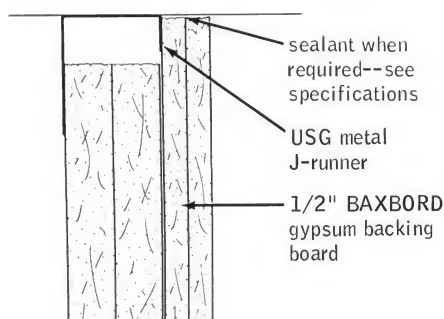


4 1/8" 3 hrs T-4423 OSU

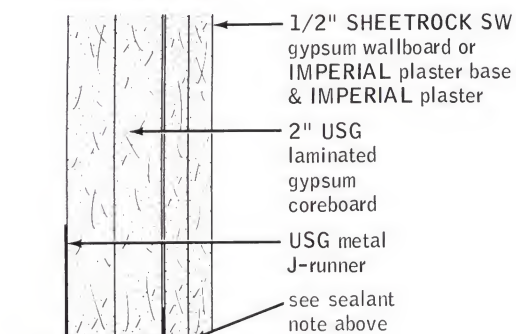
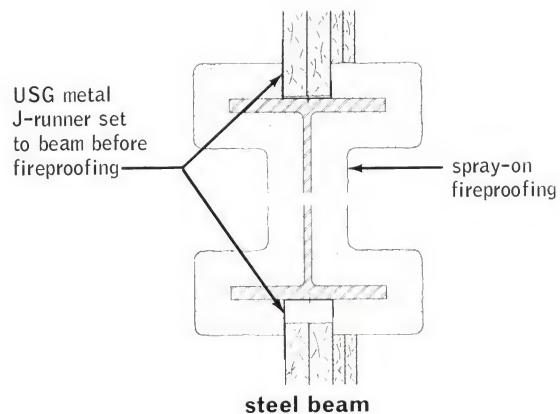
(1) also available for 2 1/2" USG laminated gypsum coreboard system

details

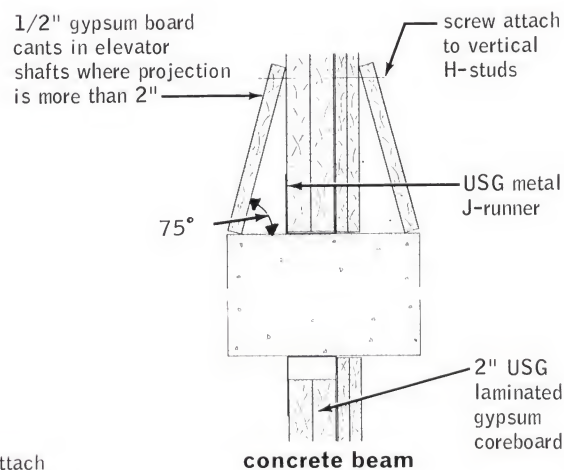
scale: 1 1/2" & 3" = 1'-0"



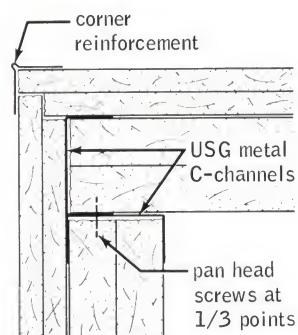
head section

base section
2 hr. assembly

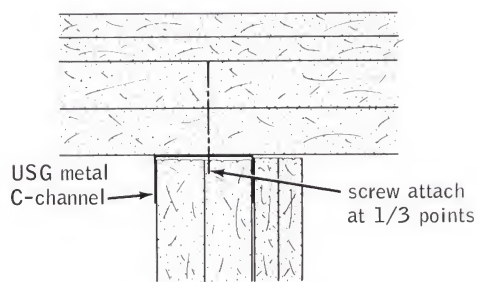
steel beam



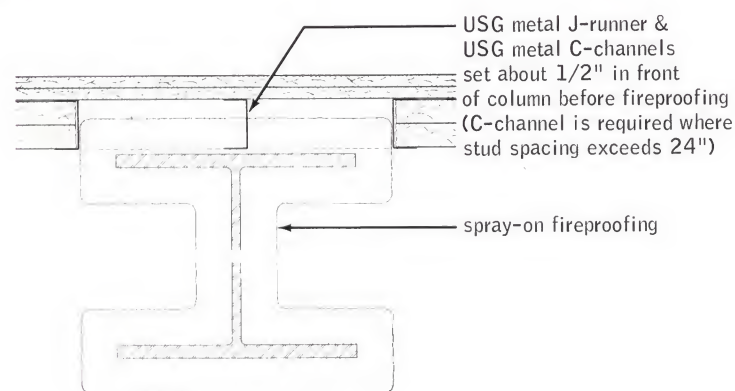
concrete beam



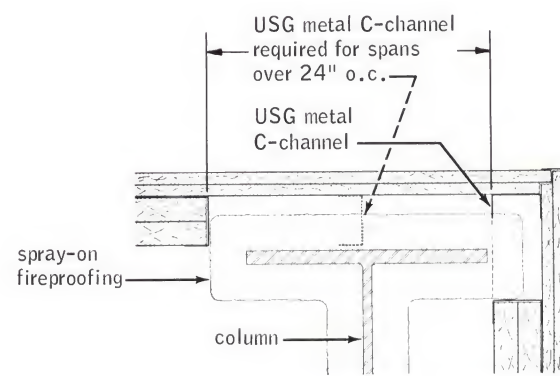
corner



wall junction



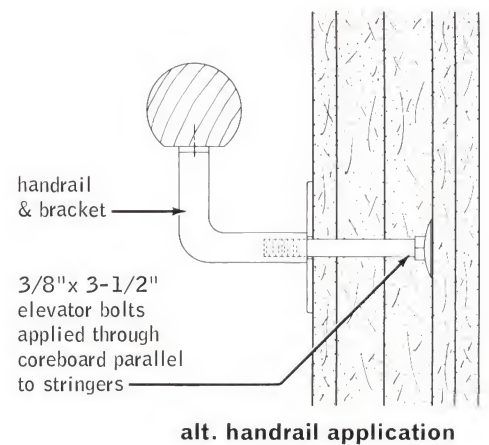
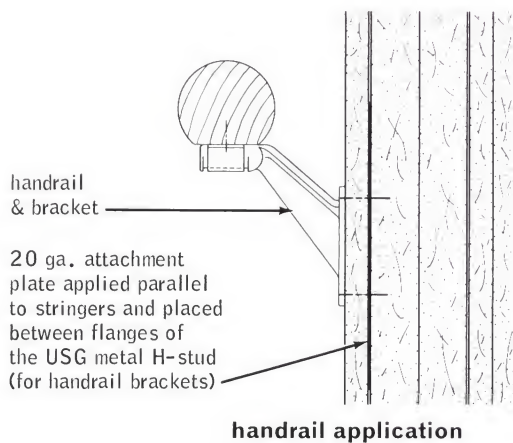
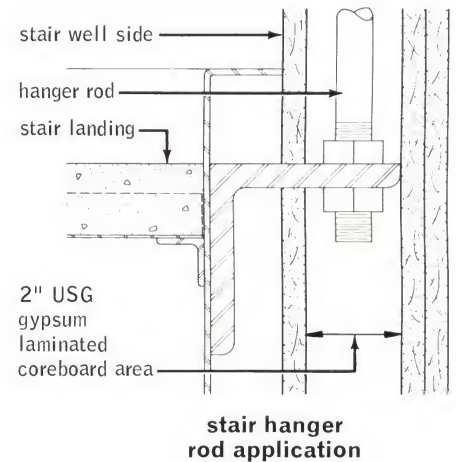
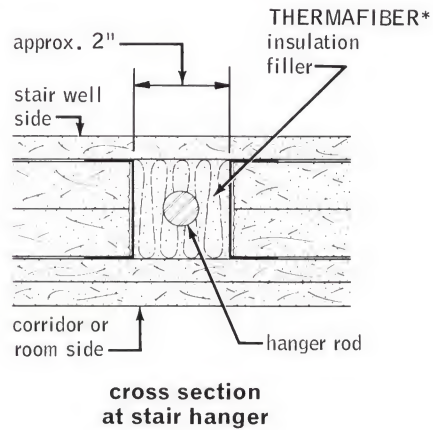
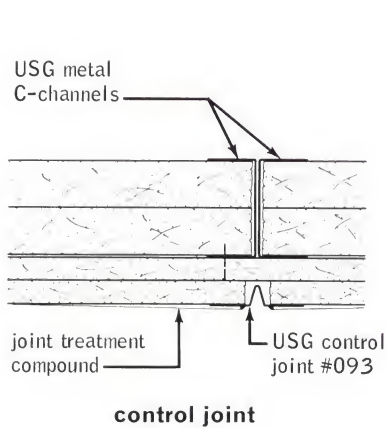
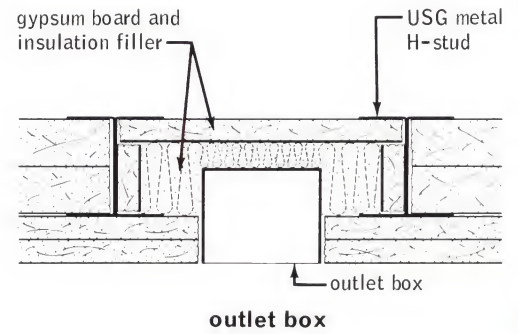
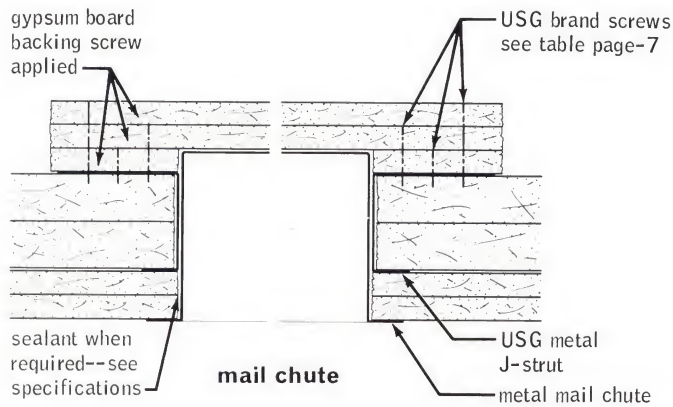
column bypass



corner column bypass

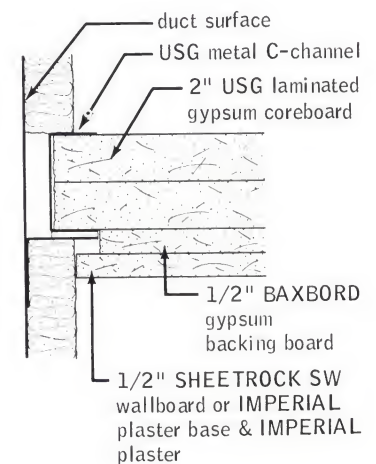
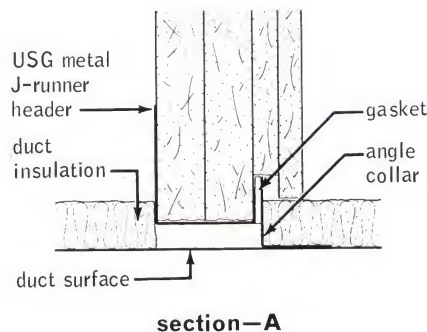
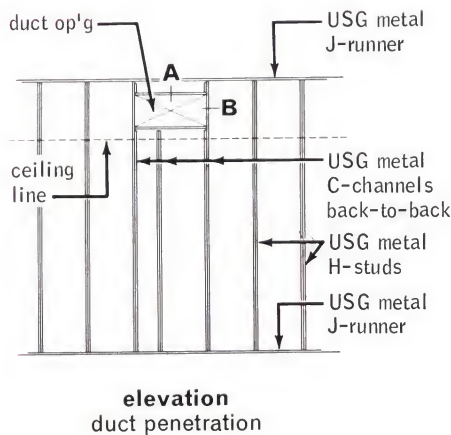
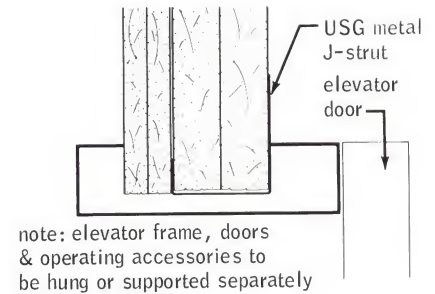
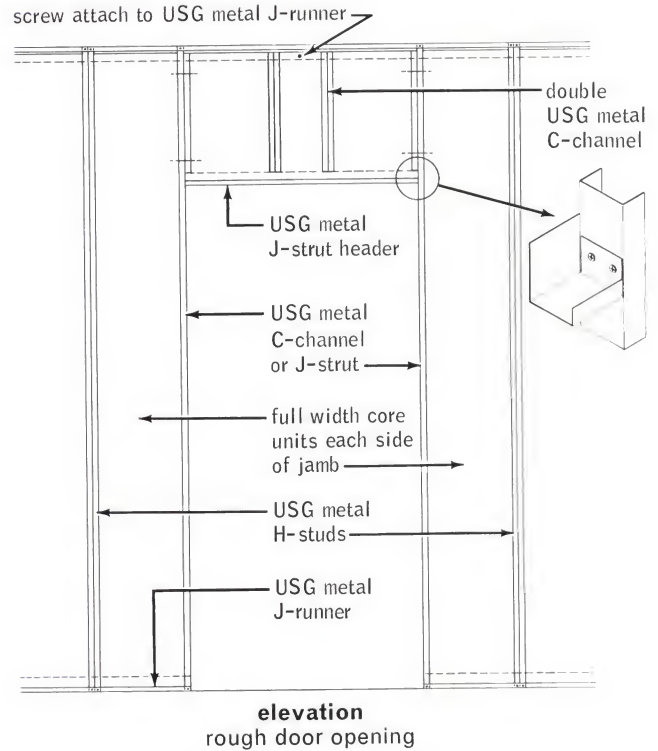
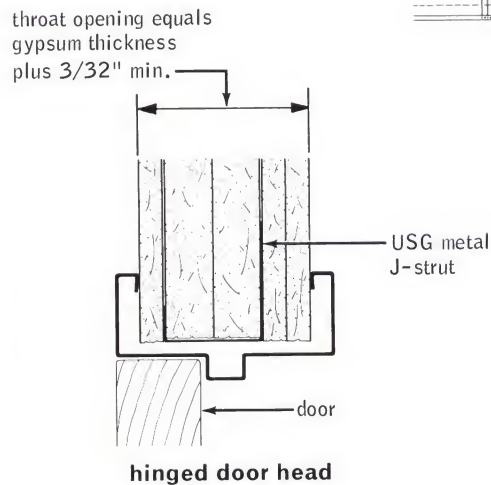
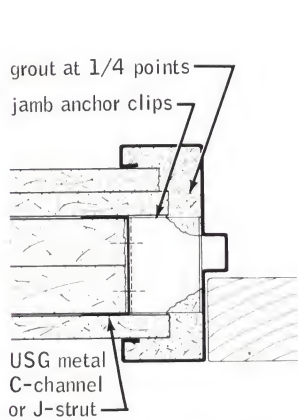
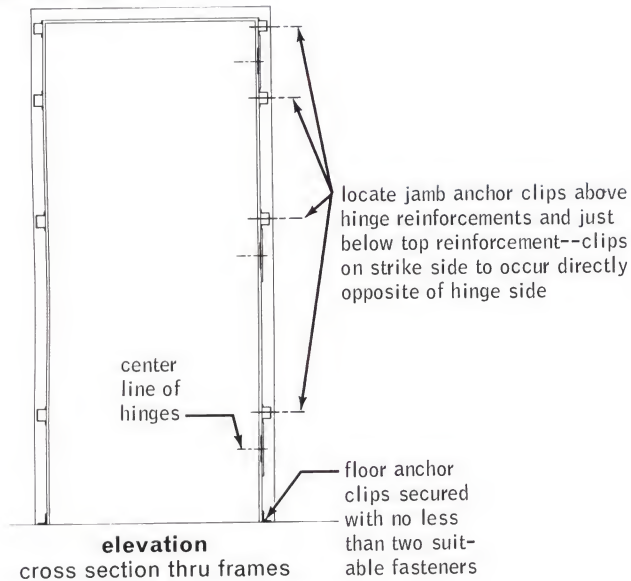
details

scale: 3" = 1'-0"



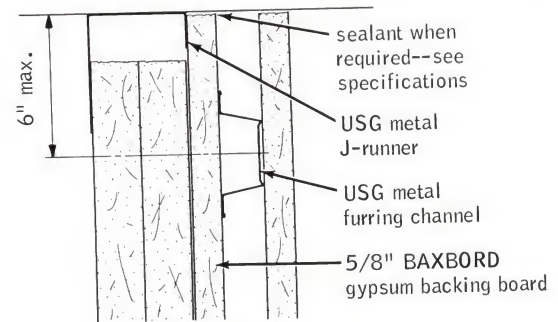
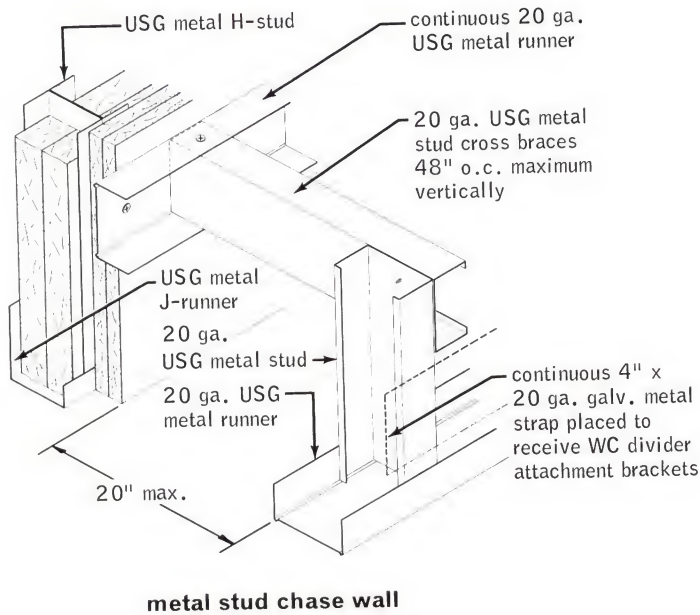
details

door frames

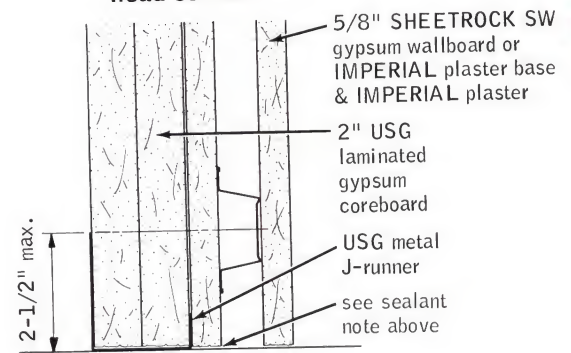


details/design data

scale: 3" = 1'-0"



head section



base section
3 hr. assembly

USG Metal J-Runner⁽¹⁾, H-Stud and C-Channel thickness⁽²⁾

air pressure	5 psf		7.5 psf		10 psf		15 psf	
wall height	runner ga.	stud ga.	runner ga.	stud ga.	runner ga.	stud ga.	runner ga.	stud ga.
2" thick x 24" wide coreboard panels								
8'0"	24	24	24	24	24	24	20	24
8'6"	24	24	24	24	24	24	20	24
9'0"	24	24	24	24	24	24	20	22
9'6"	24	24	24	24	24	24	20	20
10'0"	24	24	24	24	24	24	20	18
2" thick x 16" wide coreboard panels								
10'0"	24	24	24	24	24	24	20	22
10'6"	24	24	24	24	24	24	20	20
11'0"	24	24	24	24	20	24	20	18
11'6"	24	22	20	22	20	22	20	16
12'0"	24	20	20	20	20	20	16	14†
2" thick x 12" wide coreboard panels								
12'0"	24	20	20	20	20	20	16	18
12'6"	20	18	20	18	20	18	16	16
13'0"	20	18	20	18	20	18	16	14†
13'6"	20	16	20	16	20	16	16	14†
14'0"	20	14†	20	14†	20	14†	16	12†
2½" thick x 12" wide coreboard panels								
14'0"	20	20	20	20	20	20	16	18
14'6"	20	18	20	18	20	18	16	16
15'0"	20	16	20	16	20	16	16	16
15'6"	20	16	20	16	20	16	16	14†
16'0"	20	14†	20	14†	20	14†	16	14†

(1) Runner track fastener spacing should not exceed 24" o.c. Fasteners should withstand 190 lb. single shear and 200 lb. bearing load. Select H-studs and C-channels of same gauge. (2) Hot dipped galvanized gauge. † Available on special order only.

shaft wall heights

coreboard panel size	recommended height range
2"x24"	8' to 10'
2"x16"	10' to 12'
2"x12"	12' to 14'
2½"x12"	14' to 16'

specifications

notes to architect

1. Metal door and borrowed-light frames should be at least 16-ga. steel, shop primed, and have throats accurately formed to overall thickness of the shaft wall plus ¾" minimum. They should be anchored at floor with 14-ga. steel plates welded to trim flanges, with provision for two power-driven anchors or equal per plate. Jamb anchor clips should be 18-ga. steel welded in jamb (see details, page 5). Studs are screw-attached to jamb anchor clips.

All one-piece frames should be spot grouted at quarter points after coreboard is installed. Apply DURABOND* or USG Ready-Mixed Joint Compound, RED TOP* gypsum-sand or STRUCTO-LITE* Plaster just before inserting face layer into frame; do not terminate wallboard against trim return. Elevator door frames should be separately framed and supported.

2. Shaft wall surfaces should be isolated with control joints or other means where: (a) construction changes within the plane of the shaft wall; (b) shaft wall run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.

3. Penetrations of the diaphragm, such as door frames and duct openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

4. Where access panels or large duct penetrations occur in shafts having pressure loads, headers, sills and adjacent channels may require reinforcing to properly distribute these loads.

5. Where shaft walls enclose elevator and return air shafts, caulking is recommended at intersections with floors, ceilings, columns, ducts, etc. to seal peripheries and penetrations and minimize whistling and dirt accumulation due to air movement.

6. USG Brand Screws Type S are suitable for wallboard or plaster base attachment to 24-ga. H-Studs, C-Channels and J-Runners and USG Metal Furring Channels. Type S-12 should be specified for all other applications to heavier gauge metal. $\frac{7}{8}$ " and $1\frac{5}{16}$ " length available in Type S only. Screw length for wallboard or plaster base application should be selected from the table below:

	$\frac{1}{2}$ " thick board	$\frac{5}{8}$ " thick board
single layer	$\frac{7}{8}$ "	1"
double layer		
base layer	$\frac{7}{8}$ "	1"
face layer	$1\frac{5}{16}$ "	$1\frac{5}{8}$ "

Screw length should be $2\frac{3}{8}$ " for 2" thick laminated coreboard, 3" for $2\frac{1}{2}$ " thick panels and at least $\frac{3}{8}$ " longer than the total thickness for other applications.

7. DURABOND Joint Compound and PERF-A-TAPE Reinforcing are recommended for joint treatment of IMPERIAL Plaster Base.

8. In steel frame construction, runners and C-Channels on beams and columns should be installed before steel is spray-fireproofed. Excess fireproofing should be removed from runners and channels before installing coreboard and caulking.

9. See U.S.G. Product Folders in this series: Joint Treatment Folder for Joint System Specifications; Gypsum Wallboard Folder for Wallboard System Components; Paint Products Folder for Paint Specifications; Gypsum Plasters Folder for Plaster Specifications; Plaster Bases & Accessories Folder for General Lathing Specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

a. In cold weather and during wallboard application and joint finishing, temperatures within the building shall be maintained within the range of 55° to 70°F. Adequate ventilation shall be provided to carry off excess moisture.

b. When low humidity, high temperatures and rapid drying conditions exist during plaster base and plaster application, DURABOND Joint Compound and PERF-A-TAPE Reinforcement shall be used on all joints, internal corners, trim and corner beads and allowed to set and dry thoroughly before plaster application.

1.5 protection

All materials shall be suitably protected from the weather during installation to prevent damage to the shaft wall.

Part 2: products

2.1 materials

- a. Coreboard
 - 2" USG Laminated Gypsum Coreboard, beveled edge, (12") (16") (24") wide, lengths as required.
 - $2\frac{1}{2}$ " USG Laminated Gypsum Coreboard, beveled edge, 12" wide, lengths as required.
- b. Backing Board—($\frac{1}{2}$ ") ($\frac{5}{8}$ ") thick, (24") (48") wide BAXBORD, lengths as required.
- c. Faceboards—($\frac{1}{2}$ ") ($\frac{5}{8}$ ") thick, 48" wide, SHEETROCK SW Gypsum Wallboard, lengths as required.
- d. Plaster Base—($\frac{1}{2}$ ") ($\frac{5}{8}$ ") thick, 48" wide, square edge, IMPERIAL Plaster Base, lengths as required.
- e. Laminating Adhesive—USG or PERF-A-TAPE Joint Compound-Taping.
- f. Joint Treatment—(select a U.S.G. Joint System).
- g. Fasteners—(specify type from page 2).
- h. USG Metal Trim—(specify type from page 2).
- i. USG Corner Bead—DUR-A-BEAD, PERF-A-BEAD, #900 Bead (specify type from page 2).
- j. USG Control Joint No. 093.
- k. USG Metal H-Studs, 2" x (2") ($2\frac{1}{2}$ ") x (24) (22) (20) (18) (16)-ga., lengths as required (select gauge from design tables).
- l. USG Metal C-Channels, 1" x (2") ($2\frac{1}{2}$ ") x (24) (22) (20) (18) (16)-ga., lengths as required (select gauge from design tables).
- m. USG Metal J-Runners, 1" x (2") ($2\frac{1}{2}$ ") x $2\frac{1}{4}$ " x (24) (20) (16)-ga. x 10' lengths (select gauge from design tables).
- n. USG Metal J-Struts, $\frac{3}{4}$ " x (2") ($2\frac{1}{2}$ ") x 2" x (24) (20) (16)-ga. x 10' lengths (for framing openings).
- o. USG Metal Furring Channels.
- p. Runner Fasteners shall be power-driven type and shall withstand 193 lbs. single shear and 200 lbs. bearing force when driven into structural head or base and without exceeding allowable design stress in runner, fastener or structural support (not available from U.S.G.).
- q. USG Acoustical Sealant.

Part 3: execution**3.1 shaft wall erection**

Position metal runners at floor and ceiling with the short leg toward finish side of wall. Securely attach runners to structural supports with power-driven fasteners at both ends and 24" o.c. With steel frame construction, install runners and C-channels on columns before steel is spray-fireproofed. Remove fireproofing from runners and C-channels before installing coreboard and sealant.

Cut laminated coreboard panels 1" less from floor-to-ceiling height and erect vertically between J-runners.

Cut metal H-studs $\frac{1}{4}$ " less than floor-to-ceiling height and install between coreboard panels and coreboards inserted in the groove. Install full-length metal C-channels over coreboard panels at T-intersections, corners, door jambs, columns and both sides of closure panels. At corners securely fasten adjacent C-channels together with pan head screws. Frame openings cut within a coreboard with C-channels around perimeter. For openings up to 56" wide, frame with vertical C-channels at edges, horizontal J-runner at head and sill and reinforcing as shown on the drawings. Use J-strut as header over door frames. Suitably frame all openings to maintain structural support for wall.

Install floor-to-ceiling-height metal C-channels each side of steel door frames to act as strut-ends. Attach strut-stud to floor and ceiling runners with two $\frac{3}{8}$ " type S-12 pan head screws. Over metal doors, install a cut-to-length section of J-strut with flanges cut out at ends and web bent to allow attachment to strut-studs. Attach J-strut to adjacent strut-studs with $\frac{3}{8}$ " type S-12 screws.

For single layer (wallboard) (veneer plaster) finish, install $\frac{5}{8}$ " (SHEETROCK SW Wallboard) (IMPERIAL Plaster Base) vertically to one side of coreboard panels with joints staggered from joints in coreboard. Fasten face panels to H-studs and C-channels with 1" type (S) (S-12) screws spaced 12" o.c. and alternated in H-stud flanges.

For double layer (wallboard) (veneer plaster) finish, erect $\frac{1}{2}$ " (SHEETROCK SW Wallboard) (IMPERIAL Plaster Base) base layer vertically one side of coreboard panels with joints staggered from joints in coreboard. Fasten base layer panels to H-studs and C-channels with ($\frac{7}{8}$ ") (1") type (S) (S-12) screws spaced 12" o.c. and alternated in H-stud flanges.

Apply $\frac{1}{2}$ " face layer vertically over base layer with joints staggered and attached with ($1\frac{5}{16}$ ") ($1\frac{3}{8}$ ") type (S) (S-12) screws and adhesive at vertical joints. Apply adhesive to base layer in strips of four $\frac{1}{2}$ " beads spaced 2" o.c. with strips centered under face layer joint. Space screws 12" o.c. and drive through base layer into studs and channels.

For double layer, furred wallboard finish, erect $\frac{5}{8}$ " (SHEETROCK SW Wallboard) (IMPERIAL Plaster Base) base layer vertically on one side of coreboard panels with joints staggered from joints in coreboard. Attach base layer panels to H-studs and C-channels with 1" type (S) (S-12) screws spaced 12" o.c. and alternated in H-stud flanges. Position USG Metal Furring Channels horizontally and space 24" o.c. vertically. Fasten channels through base layer into H-studs with two 1" type (S) (S-12) screws at each channel-stud intersection. Apply $\frac{3}{8}$ " thick face layer over furring channels and attach with 1" type S screws spaced 12" o.c.

3.2 accessory application

a. Joint System—Finish all wallboard face layer joints and internal angles with a U.S.G. Joint System installed according to manufacturer's directions. Spot exposed fasteners on face layers and finish corner bead, control joints and trim as required, with at least three coats of joint compound, feathered out onto panel faces and sanded smooth.

b. DURABOND Joint System—Treat all plaster base joints, internal corners, trim and corner bead. Allow to dry thoroughly before finish plaster application.

c. Corner Bead—Reinforce all vertical and horizontal exterior corners with corner bead fastened with staples 9" o.c. on both flanges along entire length of bead.

d. Metal Trim—Where shaft wall terminates against masonry or other dissimilar material, apply metal trim over face layer edge and fasten with screws or staples spaced 12" o.c.

e. Screws—Power-drive at least $\frac{3}{8}$ " from edges or ends of wallboard to provide uniform dimple $\frac{1}{32}$ " deep. In plaster base set screw head flush with surface without tearing through face paper.

f. Control Joints—Break face layer behind joint. Attach control joint to face layer with staples spaced 6" o.c. on both flanges along entire length of joint.

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (metal products, gypsum coreboard, adhesives); SHEETROCK, FIRECODE (gypsum wallboard); PERF-A-TAPE, DURABOND (joint treatment); DUR-A-BEAD, PERF-A-BEAD (corner reinforcement); IMPERIAL (plaster and base); RED TOP, STRUCTO-LITE (plaster).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

new, fire-resistant drywall partitions for enclosing shafts in multi-story buildings

USG Cavity Shaft Walls are newly developed for greater economy. Compared to solid gypsum or masonry shaft walls, they offer faster installation, lower material cost and lighter weight to provide lower in-place costs and savings in structural steel. In addition, they offer 2-hour fire resistance, effective sound control, structural strength to resist lateral loads and a cavity for electrical services.

description

These non-load bearing partition assemblies consist of SHEETROCK SW Gypsum Panels or IMPERIAL Plaster Base and Plaster, steel studs and runners, and USG Shaft Wall Liner. They are ideally suited for enclosing elevator shafts, stair wells, air ducts and plumbing shafts. Easily installed from outside the shaft, these systems provide shaft enclosures that may be finished later along with interior partitions.

This latest improvement in gypsum shaft walls uses thinner, lower-cost studs and core materials which install faster than solid types. Dead load is 4 psf less for a partition having 2-hour fire resistance and equivalent structural strength. In addition, a cavity accommodates electrical conduit and boxes or sound attenuation blankets.

In these assemblies, USG Shaft Wall Liner panels are installed vertically between USG Steel J-Runners attached to floor and ceiling. Panel edges are inserted in specially formed USG Steel T-Studs or E-Studs spaced 24" or 16" o.c. depending on design requirements. Double-layer $\frac{5}{8}$ " gypsum panels are screw-attached to one side of T-Studs. Joints are finished with DURABOND Joint Compounds and PERF-A-TAPE Reinforcing. As an alternate, interior surfaces may be finished with double-layer IMPERIAL Plaster Base and high-strength veneer plaster.

USG Shaft Wall Liner for these assemblies has a gypsum core, specially formulated for added fire resistance, encased in multi-layered green paper chemically treated to combat penetration of moisture. Panels are available 1" thick, in 16" and 24" widths both with beveled edges and in lengths up to 14 ft.

SHEETROCK SW Gypsum Panels for these systems are $\frac{5}{8}$ " thick with an eased radial tapered edge specially designed to overcome joint deformation. The board meets ASTM C36 and Federal Specification SS-L-30c. IMPERIAL Plaster Base, $\frac{5}{8}$ " thick and 4 ft. wide, has a high strength, high-density core covered with special absorption face paper designed for veneer plastering. The board meets ASTM C588 and Federal Specification SS-L-30c. USG Steel J-Runners, J-Struts, T-Studs and E-Studs are formed from hot-dipped galvanized steel.

engineered performance to meet design requirements

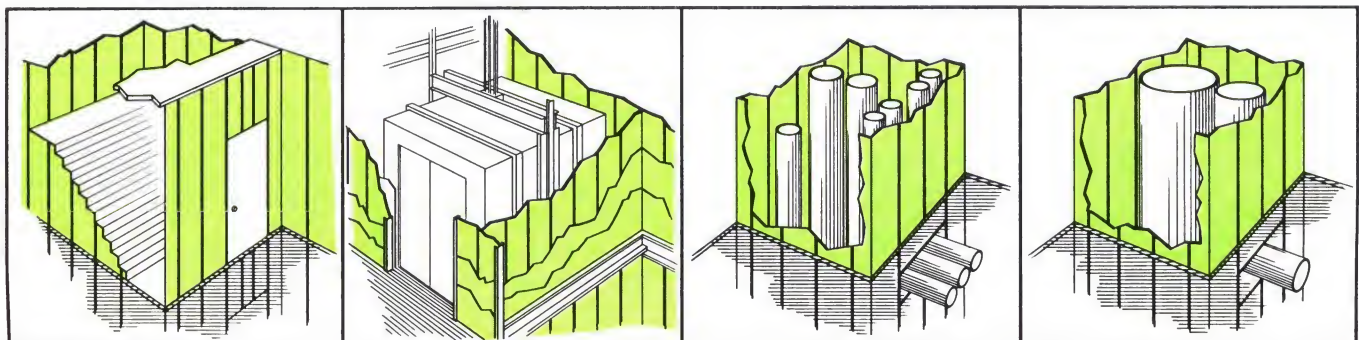
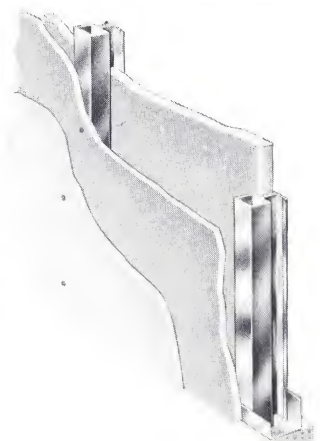
The systems have been designed and tested using accepted engineering practices with deflection criteria of 1/120, 1/240 and 1/360 clear partition heights. A wide range of product and installation combinations is available to meet performance requirements: air pressure loading of 5, 7½, 10, 15 psf; vertical heights up to 18 ft.; 16" and 24" stud spacing. Special 4" and 6" USG Steel E-Studs are available for vertical heights up to 38 ft. that may be required in lobbies or mechanical rooms (see Design Data Tables, page 7).

excellent fire resistance

Tested at University of California on Aug. 13, 1970, USG Cavity Shaft Wall qualified for a 2-hour fire rating. The test assembly had two layers $\frac{5}{8}$ " SHEETROCK Gypsum Panels screw-attached one side over USG Steel T-Studs 24" o.c., and 1" thick Shaft Wall Liner, set in Steel J-Runners between studs. Base layer is applied horizontally; face layer vertically; joints finished.

The 2-hour fire rating also applies with IMPERIAL Plaster Base and veneer plaster finish.

Partition weight 10 lbs./sq. ft.; thickness 3¾"; relative cost index 210.



stair wells

elevator shafts

mechanical shafts

air ducts

USG Cavity Shaft Walls provide lightweight, sturdy partitions— fast, low-cost construction

simplified assembly

The system's lightweight components are easily handled and erected. Beveled-edge liner panels slip into studs; large face panels are quickly screw-attached. The whole partition erects faster than smaller-size unit masonry and other multi-layer wallboard systems.

shorter construction schedules— earlier occupancy

USG Cavity Shaft Walls are installed from each floor, leaving the shaft free of scaffolding. Elevators can be installed months earlier than with masonry shafts to transport men and materials quickly from floor to floor. The whole job moves faster, schedules are more easily met and the building can be occupied sooner.

lower structural steel costs

These lightweight systems weigh only 10 psf—over 75% less than masonry shaft enclosures weighing up to 45 psf. Significant savings in structural steel framing are available.

sound control advantages

The standard assembly offers 39 STC rating; 44 STC can be obtained by adding 1" THERMAFIBER Sound Attenuation Blankets in the partition cavity.

accept electrical services

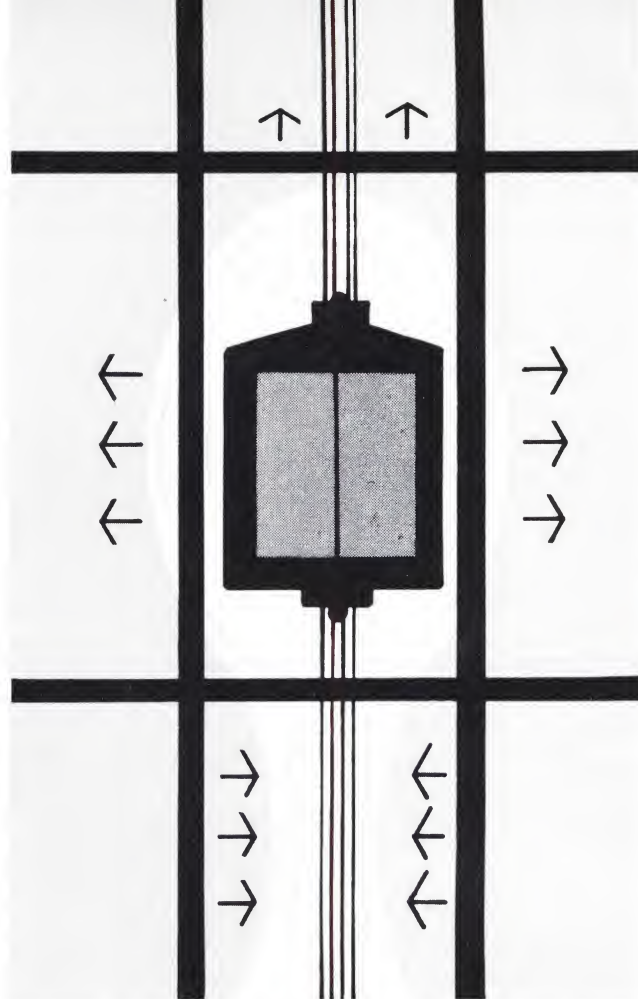
Fixtures and conduit are easily installed vertically in the 1½" cavity between liner and face panels.

provide airtight seal

With USG Acoustical Sealant applied to partition perimeter and penetrations, the assemblies resist air leakage up to 50 psf (see details, page 4). This minimizes whistling and dirt accumulation due to air movement and makes these systems ideal for elevator and return air shafts.

limitations

1. Non-load bearing.
2. Stud and runner thickness, stud spacing, wind loading and maximum flexural stress shown in the Design Data Tables should not be exceeded.
3. Horizontal runs of electrical conduit requiring penetration of metal stud are not recommended.
4. Elevator door frames should be independently mounted.



USG Shaft Walls withstand air-pressure loads which high-speed elevators create. These forces have dislodged masonry units in some building shafts.

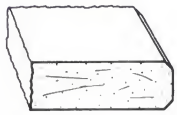
specifications

notes to architect

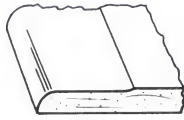
1. Shaft wall surfaces should be isolated with control joints or other means where: (a) construction changes within the plane of the shaft wall; (b) shaft wall run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.
2. Penetrations of the diaphragm, such as door frames and duct openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.
3. Where access panels or large duct penetrations occur in shafts having pressure loads, headers, sills and adjacent channels may require reinforcing to properly distribute these loads.
4. Where shaft walls enclose elevator and return air vents, sealant is recommended at intersections with floors, ceilings, columns, ducts, etc. to seal peripheries and penetrations and minimize whistling and dirt accumulation due to air movement.
5. USG Brand Screws Type S are suitable for gypsum panel or plaster base attachment to 25-ga. T-Studs and E-Studs. Type S-12 Screws should be specified for all other applications to 20-ga. steel. Screw length should be 1" for base layer and 1½" for face layer and at least ¾" longer than the total thickness for other applications.
6. DURABOND Joint Compound and PERF-A-TAPE Reinforcing are recommended for joint treatment of IMPERIAL Plaster Base.
7. In steel frame construction, runners and E-Studs attached to beams and columns should be installed before steel is spray-

(continued on page 7)

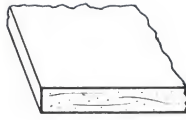
components



1" USG gypsum shaft wall liner



SHEETROCK SW gypsum panels



BAXBORD gypsum backing board



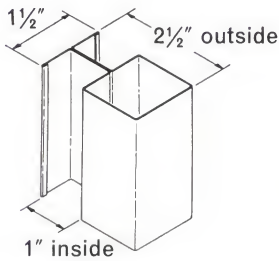
IMPERIAL plaster base



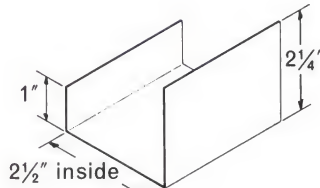
IMPERIAL finish plaster



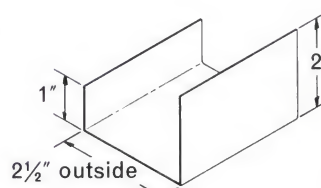
IMPERIAL tape



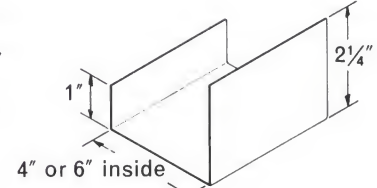
USG steel T-stud



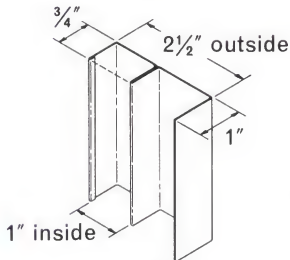
USG steel J-runner



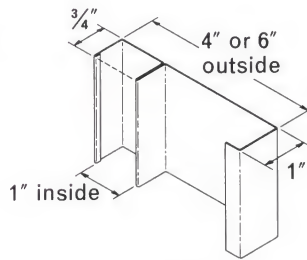
USG steel J-strut



USG steel J-runner

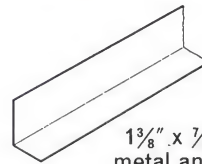


USG steel E-stud

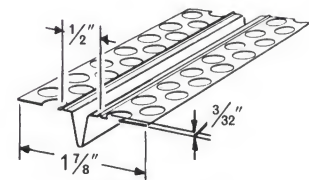


USG steel E-stud

see "gypsum wallboard, joint treatment & plaster bases" product catalogs for full description on accessories



1 3/8" x 7/8" -24 ga. metal angle runner



USG control joint #093



3/8" USG brand screw—type S-12—pan head



1" USG brand screw—type S-12—bugle head also in 1 5/8" length



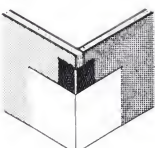
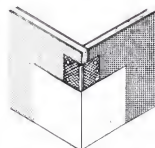
1" USG brand screw—type S—bugle head also in 1 5/8" length



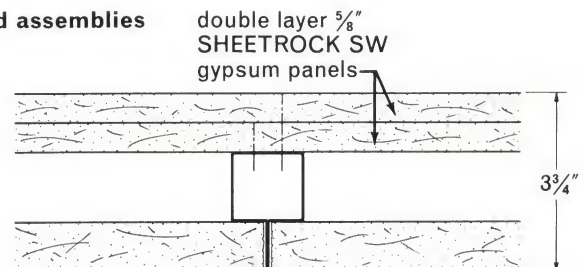
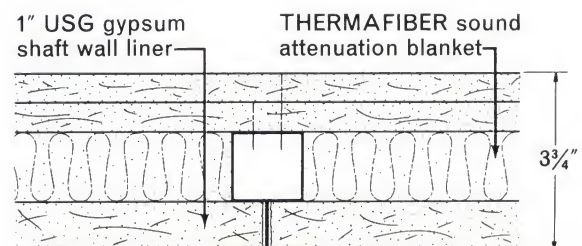
DUR-A-BEAD corner reinforcement drywall system



no. 900 USG corner reinforcement drywall or plaster system



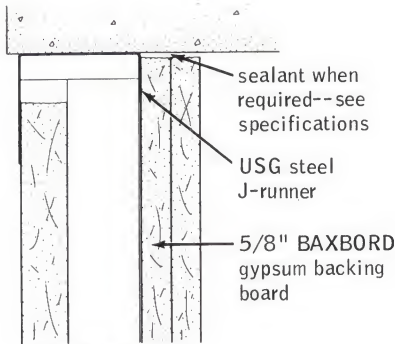
rated assemblies

2-hr.
39-STCU of C 8-13-70
TL-70-2702-hr. est.
44-STC

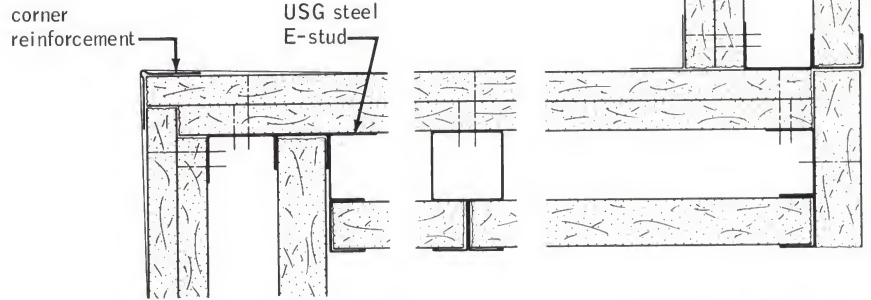
TL-71-21

details

scale: 1-1/2" & 3" = 1'-0"

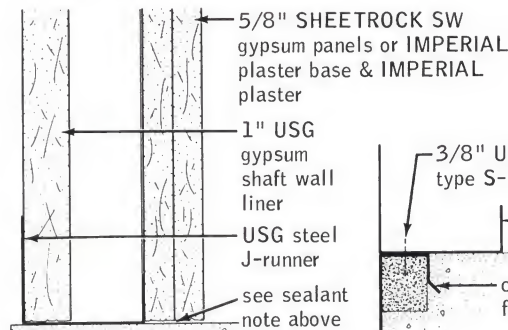


head section

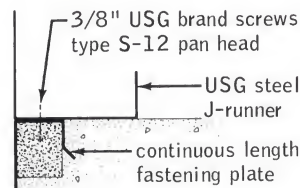


outside corner

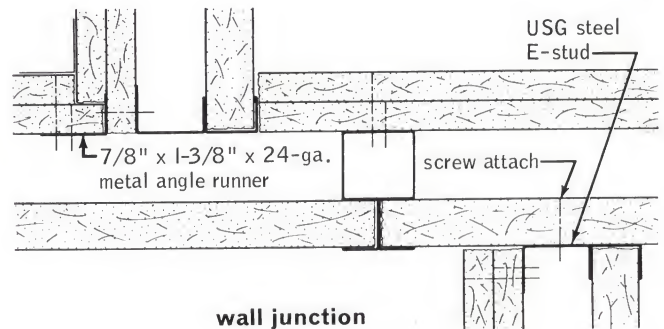
inside corner



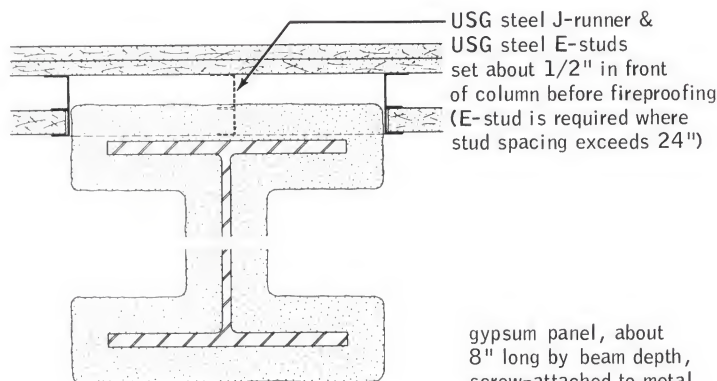
base section



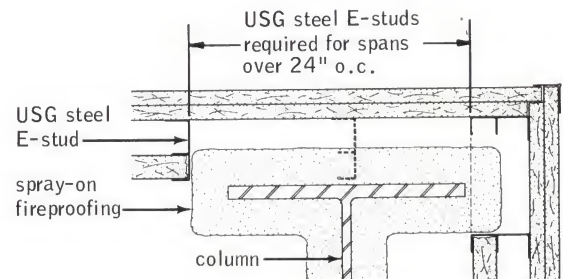
opt. base section



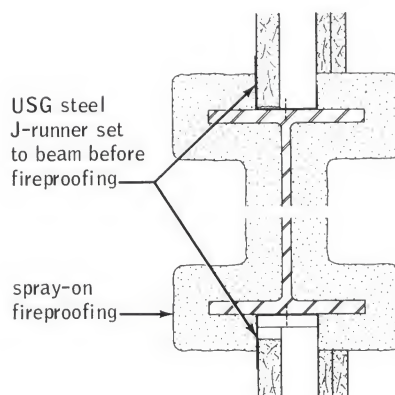
wall junction



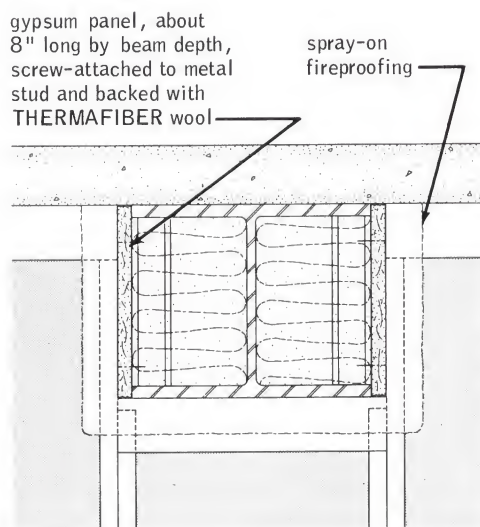
column bypass



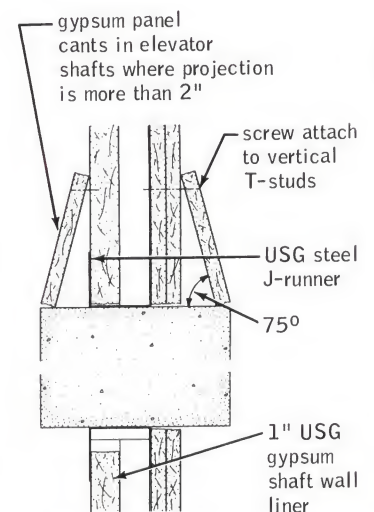
corner column bypass



steel beam



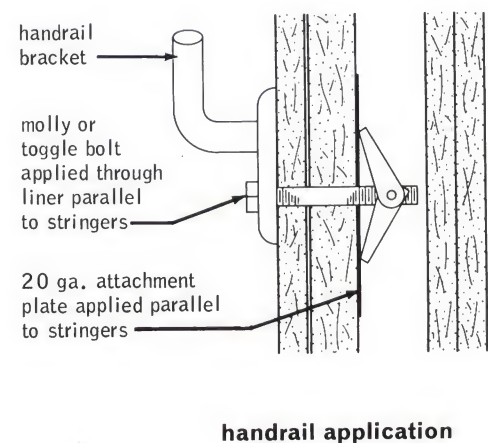
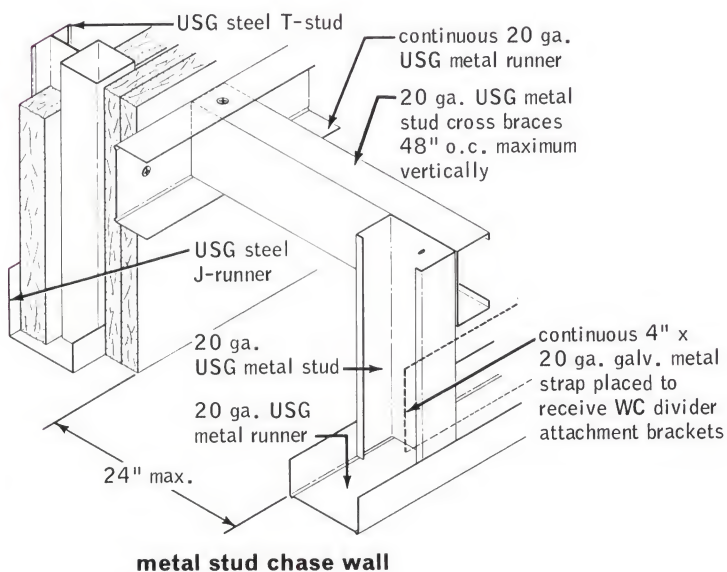
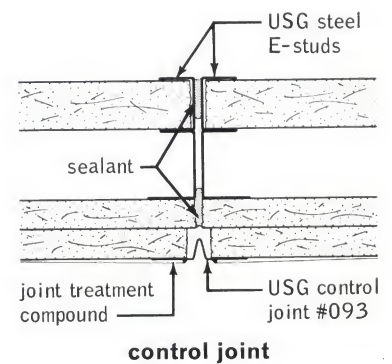
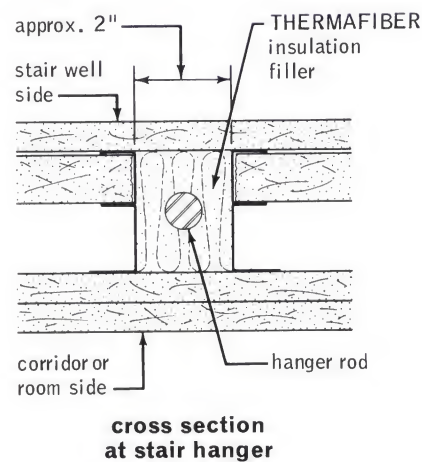
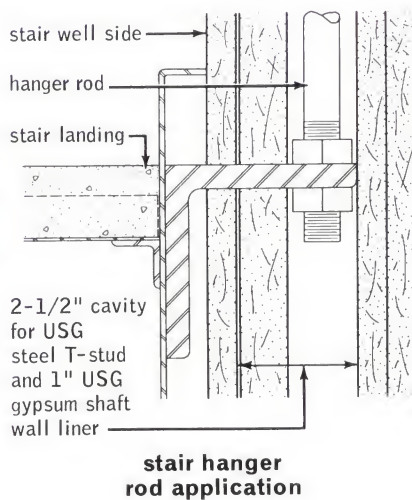
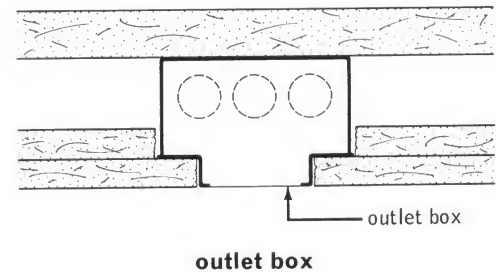
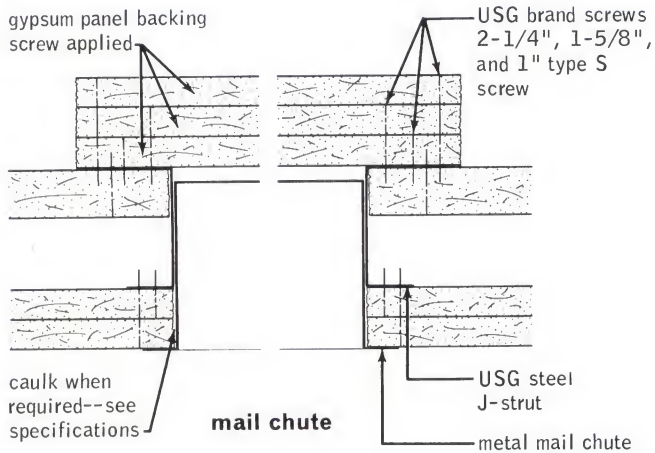
boxed beam



concrete beam

details

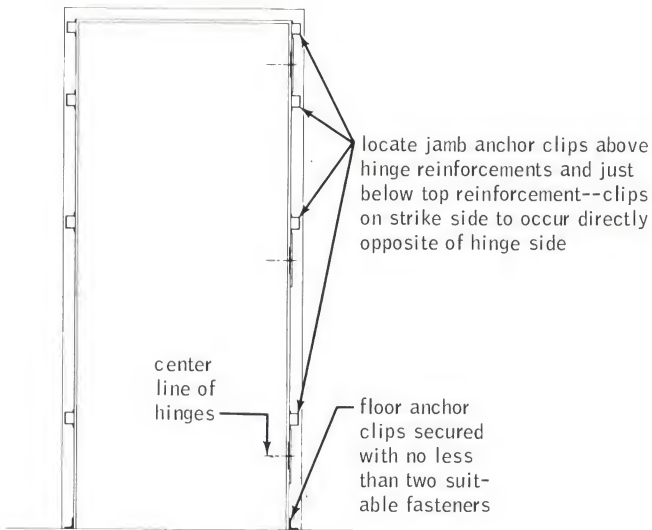
scale: 3" = 1'-0"



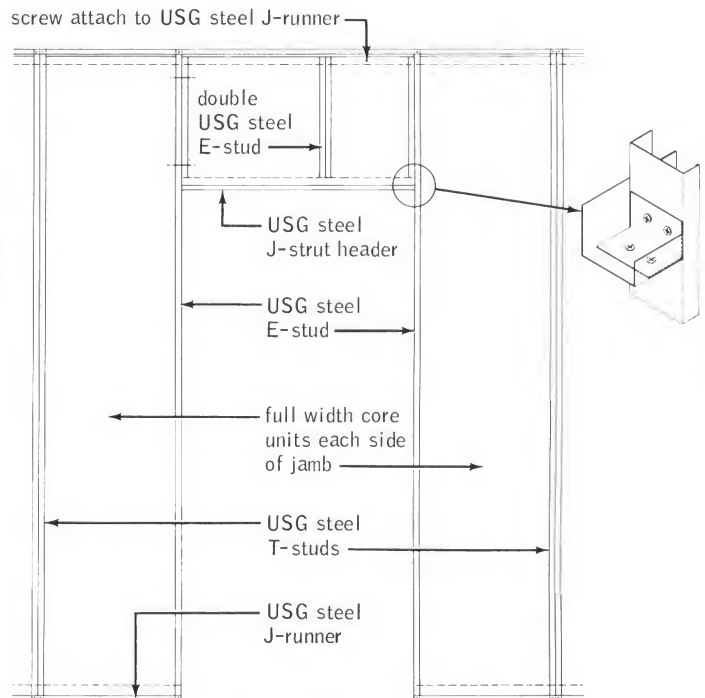
details

scale: 3" = 1'-0"

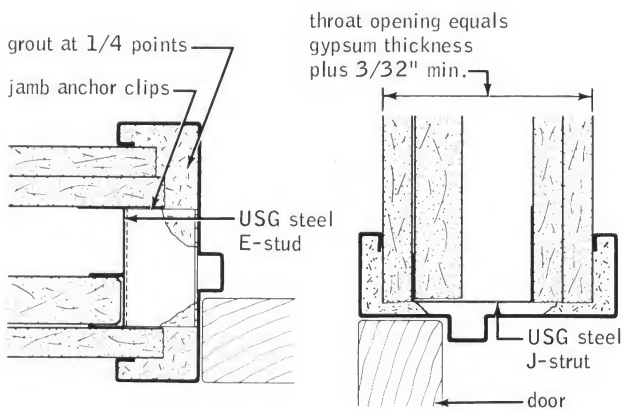
door frames



elevation
cross section thru frames

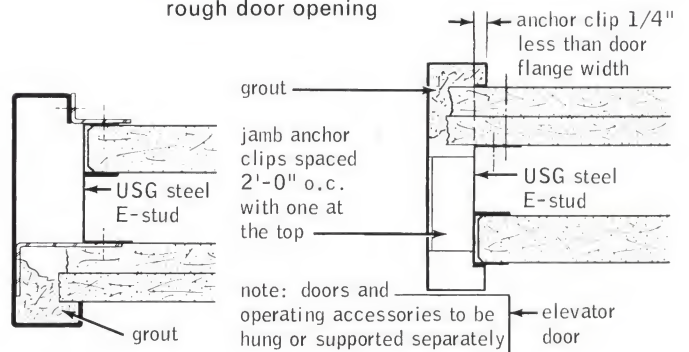


elevation
rough door opening



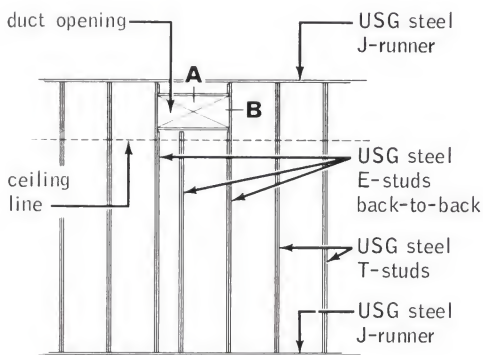
hinged door jamb

hinged door head

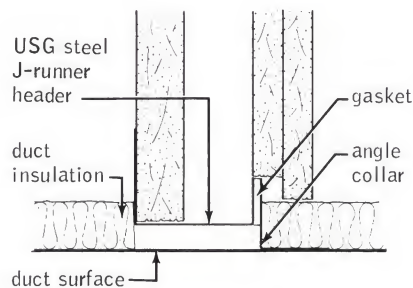


elevator door jamb
(post erected)

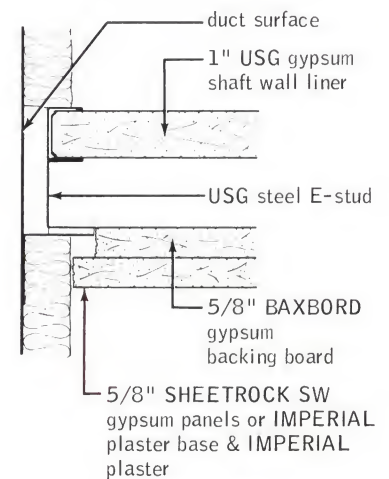
elevator door jamb
(pre-erected)



elevation
duct penetration



section-A



section-B

design data/specifications

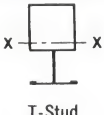
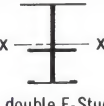
limiting heights

stud type & size	metal gauge (1)	stud spacing	allowable deflection	psychological response—p	air pressure load—psf			
					5	7.5	10	15
2½" T-Studs or double 2½" E-Studs	25	24"	1/120	11'0"	13'3"(f)	11'0"(f)	9'6"(f)	7'9"(f)
			1/240		12'6"(d)	11'0"(d)	9'6"(f)	7'9"(f)
			1/360		11'0"(d)	9'6"(d)	8'9"(d)	7'6"(d)
		16"	1/120	12'3"	16'3"(f)	13'3"(f)	11'6"(f)	9'6"(f)
			1/240		14'3"(d)	12'6"(d)	11'3"(d)	9'6"(f)
			1/360		12'6"(d)	11'0"(d)	10'0"(d)	8'9"(d)
	20	24"	1/120	12'3"	18'0"(d)	15'3"(f)	13'3"(f)	10'9"(f)
			1/240		14'3"(d)	12'6"(d)	11'3"(d)	9'9"(d)
			1/360		12'6"(d)	10'9"(d)	9'9"(d)	8'6"(d)
		16"	1/120	16'0"	23'0"(f)	18'9"(v)	14'0"(v)	9'3"(v)
			1/240		19'0"(d)	16'6"(d)	14'0"(v)	9'3"(v)
			1/360		16'6"(d)	14'3"(d)	13'0"(d)	9'3"(v)
double 4" E-Studs	25	24"	1/120	17'9"	26'9"(d)	23'3"(d)	21'3"(d)	17'3"(f)
			1/240		21'3"(d)	18'6"(d)	16'9"(d)	14'9"(d)
			1/360		18'6"(d)	16'0"(d)	14'9"(d)	12'9"(d)
	20	24"	1/120	23'6"	28'0"(v)	18'9"(v)	14'0"(v)	9'3"(v)
			1/240		26'3"(d)	18'9"(v)	14'0"(v)	9'3"(v)
			1/360		23'0"(d)	18'9"(v)	14'0"(v)	9'3"(v)
double 6" E-Studs	25	24"	1/120	27'3"	38'0"(d)	33'3"(d)	30'0"(v)	20'0"(v)
			1/240		30'3"(d)	26'3"(d)	24'0"(d)	20'0"(v)
			1/360		26'3"(d)	23'0"(d)	21'0"(d)	18'3"(d)
	20	24"	1/120	27'3"	38'0"(d)	33'3"(d)	30'0"(v)	20'0"(v)
			1/240		30'3"(d)	26'3"(d)	24'0"(d)	20'0"(v)
			1/360		26'3"(d)	23'0"(d)	21'0"(d)	18'3"(d)

Limiting criteria: p—psychological response (see notes to architect), f—bending stress, d—deflection, v—end reaction shear.

(1) Hot-dipped galvanized gauge required for studs and runners. Runner attachment spacing should not exceed 24" o.c.

design properties—metal components

	stud size	metal gauge	wt./lb. per lin. ft.	S _x in. ³	I _x in. ⁴	lbs./end reaction
 T-Stud	2½"	25	.730	.100	.141	130
		20	1.250	.195	.268	300
	4"	25	1.460	.220	.278	140
 double E-Stud	2½"	25	1.264	.296	.650	140
		20	2.164	.508	1.030	300
	6"	25	1.556	.628	2.004	140
		20	2.660	1.094	3.400	300

Allowable flexural stress—26,667 psi; modulus of elasticity—29.5 x 10⁶ psi.

notes to architect (continued from page 2)

fireproofed. Excess fireproofing should be removed from runners and studs before installing shaft wall liner and sealant.

8. Psychological Response—Some limiting heights in the table above are based on psychological response or the human reaction to the partition's flexing characteristics, natural frequency of vibration and amplitude of wave motion or displacement. The height is calculated by the equation:

$$L = .032 \sqrt{\frac{EI}{bm}} + 4$$

where:

L = limiting height in feet

EI = flexural stiffness of panel in lbs. per sq. ft.

b = panel width in inches

m = unit mass in lbs. per sq. ft.

Psychological response is a limiting factor in partitions having 12 ft. or more between vertical restraints. Where partitions are stiffened by abutting assemblies or corners spaced less than 12 ft. apart, other criteria control.

9. Deflection—Selection of limiting heights should be based on allowable deflection as follows: (a) 1/240 for gypsum panel surfaces and areas to receive adhesively applied ceramic tile; (b) 1/360 for IMPERIAL Plaster surfaces and areas to receive mechanically attached marble or heavy stone. While some build-

ing codes permit design using 1/120 deflection and 5 psf uniform load, this large deflection may cause failure of screws attaching gypsum panels to steel components.

10. Metal door frames should be at least 16-ga. steel, shop primed, and have throats accurately formed to overall thickness of the shaft wall plus ⅜" minimum. They should be anchored at floor with 14-ga. steel plates welded to trim flanges, with provision for two power-driven anchors or equal per plate. Jamb anchor clips should be 18-ga. steel welded in jamb (see details, page 6), and screw-attached to studs.

All one-piece frames should be spot-grouted at quarter points after shaft wall liner is installed. Apply DURABOND or USG Ready-Mixed Joint Compound, RED TOP gypsum-sand plaster or STRUCTO-LITE Plaster just before inserting face layer into frame; do not terminate panels against trim return. Additional strut-stud bracing at the strike jamb is recommended for all hinged door frames and is required for heavy (over 50 lbs. with hardware) or oversize (more than 36" wide) doors which also require door closers and bumpers.

11. See U.S.G. Product Folders in this series: Joint Treatment Folder for joint system specifications; Gypsum Wallboard Folder for gypsum panel system components; Gypsum Plasters Folder for plaster specifications; Plaster Bases & Accessories Folder for general lathing specifications; Paint Products Folder for paint specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protec-

tion from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

a. In cold weather and during gypsum panel application and joint finishing, temperatures within the building shall be maintained within the range of 55° to 70°F. Adequate ventilation shall be provided to carry off excess moisture.

b. When low humidity, high temperatures and rapid drying conditions exist during IMPERIAL Plaster Base and Plaster application, DURABOND Joint Compound and PERF-A-TAPE Reinforcement shall be used on all joints, internal corners, trim and corner beads and allowed to set and dry thoroughly before plaster application.

1.5 protection

All materials shall be suitably protected from the weather during installation to prevent damage to the shaft wall.

Part 2: products

2.1 materials

- a. Liner Board—1" USG Gypsum Shaft Wall Liner, beveled edge, (16") (24") wide, lengths as required.
- b. Backing Board— $\frac{5}{8}$ " thick, 48" wide, square-edge BAXBORD, lengths as required.
- c. Faceboards— $\frac{5}{8}$ " thick, 48" wide SHEETROCK SW Gypsum Panels, lengths as required.
- d. Plaster Base— $\frac{5}{8}$ " thick, 48" wide, square-edge IMPERIAL Plaster Base, lengths as required.
- e. Joint Treatment—DURABOND Joint Compound and PERF-A-TAPE Reinforcing Tape.
- f. Fasteners—USG Brand Screws: $\frac{3}{8}$ " Type S-12 pan head; 1", 1 $\frac{5}{8}$ " Type (S) (S-12) bugle head.
- g. USG Metal Trim—(specify type from page 3).
- h. USG Corner Bead—DUR-A-BEAD, No. 900 Bead (specify type from page 3).
- i. USG Control Joint No. 093.
- j. USG Steel T-Studs, 1 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " x (25) (20)-ga., hot-dipped galvanized, lengths as required (*select gauge from tables*).
- k. USG Steel E-Studs, 1" x (2 $\frac{1}{2}$ ") (4") (6") x (25) (20)-ga., hot-dipped galvanized, lengths as required (*select gauge from design tables*).
- l. USG Steel J-Runners, 1" x 2 $\frac{1}{2}$ " x 2 $\frac{1}{4}$ " x (25) (20)-ga. x 10' lengths, hot-dipped galvanized (*select gauge from tables*).
- m. USG Steel Runner, 1 $\frac{1}{4}$ " x 4" (6") x 1 $\frac{1}{4}$ " x (25) (20)-ga., x 10' lengths, hot-dipped galvanized (*select gauge from design tables*).
- n. USG Steel J-Struts, 1" x 2 $\frac{1}{2}$ " x 2" x (25) (20)-ga. x 10' lengths, hot-dipped galvanized (*for framing openings*).
- o. Runner Fasteners shall be power-driven type and shall withstand 193 lbs. single shear and 200 lbs. bearing force when driven into structural head or base and without exceeding allowable design stress in runner, fastener or structural support (*not available from U.S.G.*).
- p. USG Acoustical Sealant.

Part 3: execution

3.1 shaft wall erection

Position steel runners at floor and ceiling with the short leg toward finish side of wall. Securely attach runners to structural supports with power-driven fasteners at both ends and 24" o.c. With steel frame construction, install runners and E-studs on columns before steel is spray-fireproofed. Remove fireproofing from runners and E-studs before installing shaft wall liner.

Cut liner board panels 1" less than floor-to-ceiling height and erect vertically between J-runners.

Use steel T-studs and E-studs $\frac{1}{2}$ " less than floor-to-ceiling height and install between liner panels with liner inserted in the groove. Install full-length steel E-studs over shaft wall liner at T-intersections, corners, door jambs, columns and both sides of closure panels. Frame openings cut within a liner panel with E-studs around perimeter. For openings up to 48" wide, frame with vertical E-studs at edges, horizontal J-strut at head and sill and reinforcing as shown on the drawings. Suitably frame all openings to maintain structural support for wall.

Install floor-to-ceiling-height steel E-studs each side of steel door frames to act as strut-studs. Attach strut-stud to floor and ceiling runners with two $\frac{3}{8}$ " type S-12 pan head screws. Over metal doors, install a cut-to-length section of J-strut and attach to adjacent studs with $\frac{3}{8}$ " type S-12 screws.

For double-layer (gypsum panel) (veneer plaster) finish, erect $\frac{5}{8}$ " (BAXBORD Backing Board) (IMPERIAL Plaster Base) base layer horizontally one side of studs with end joints staggered. Fasten base layer panels to studs with 1" type (S) (S-12) screws spaced 12" o.c.

Apply $\frac{5}{8}$ " (SHEETROCK SW Gypsum Panels) (IMPERIAL Plaster Base) face layer vertically over base layer with joints staggered and attached with 1 $\frac{5}{8}$ " type (S) (S-12) screws staggered from those in base, spaced 12" o.c. and driven into studs.

3.2 accessory application

a. **Gypsum Panel Joints**—Finish all face layer joints and internal angles with DURABOND Joint System installed according to manufacturer's directions. Spot exposed fasteners on face layers and finish corner bead, control joints and trim as required, with at least three coats of joint compound, feathered out onto panel faces and sanded smooth.

b. **Plaster Base Joints**—Treat all plaster base joints, internal corners, trim and corner bead with DURABOND Joint System installed according to manufacturer's directions. Allow to dry thoroughly before finish plaster application.

c. **Corner Bead**—Reinforce all vertical and horizontal exterior corners with corner bead fastened with staples 9" o.c. on both flanges along entire length of bead.

d. **Metal Trim**—Where shaft wall terminates against masonry or other dissimilar material, apply metal trim over face layer edge and fasten with screws or staples spaced 12" o.c.

e. **Screws**—Power-drive at least $\frac{3}{8}$ " from edges or ends of gypsum panels to provide uniform dimple $\frac{1}{32}$ " deep. In plaster base, set head flush with surface without tearing face paper.

f. **Control Joints**—Break face layer behind joint. Attach control joint to face layer with staples spaced 6" o.c. on both flanges along entire length of joint.

TRADEMARKS: The following trademarks used herein are owned by United States Gypsum Company: USG, SHEETROCK, BAXBORD, PERF-A-TAPE, DURABOND, DUR-A-BEAD, PERF-A-BEAD, THERMAFIBER, IMPERIAL, RED TOP, STRUCTO-LITE.
USG Cavity Shaft Walls, patent pending.

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY and any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Met Stud—1 layer 1/2" IMPERIAL plaster base Type X & veneer plaster—3/8" USG met studs 24" o.c.—pl base screw att—1" THERMAFIBER sound atten blkts stapled one side—joints stag & taped—1/16" IMPERIAL plaster—perimeter caulked wt 8 width 4 3/4"	T-3124-OSU (f) CK-664-1 (s)		45	134	Fire test based on assembly with 2 1/2" studs, without wool. Stud spacing at 16" o.c. recommended	a-1141
2 hrs.	Met Stud—2 layers 5/8" IMPERIAL plaster base Type X & veneer plaster—3/8" USG met studs 24" o.c.—base layer screw att—face layer lamin—joints taped—1/16" IMPERIAL plaster wt 12 width 6 3/4"	UL Des 11-2 hr (f) TL-63-177 (s)		50	174	Excellent for corridors; sound performance based on perimeter caulking	a-1141
2 hrs.	Met Stud—2 layers 1/2" IMPERIAL plaster base & veneer plaster—2 1/2" USG met studs 24" o.c.—run track gasketed & caulked—base layer screw att—face layer strip lamin 24" o.c. & att with Type G screws betw studs—2" THERMAFIBER sound atten blkts att one side—1/16" IMPERIAL plaster—perimeter caulked wt 10 width 4 3/4"	UL Des 27-2 hr (f) CK 654-66 (s) USG-127-FT-G&H (s) Field Test KSO-1090072-a (s)		53 52 48	183	CK 654-66 based on 2 layers Type X base screw-attached and 1" THERMAFIBER blankets; fire test same construction without wool	a-1141
2 hrs.	Met Stud—2 layers 1/2" IMPERIAL plaster base Type X & veneer plaster—2 1/2" or 3 3/8" USG studs 24" o.c.—1", 1 1/2" or 2" THERMAFIBER sound atten blkts stapled—pl base appl vert & joints stag—base layer screw att—face layer strip lamin with Type G screws betw studs—joints taped—1/16" IMPERIAL plaster—perimeter caulked wt 10 width 4 3/4"	UL Des 28-2 hr (f)	N/A		180		a-1141
2 hrs. est	Solid Gypsum—5/8" IMPERIAL plaster base & veneer plaster—pl base lamin ea face to 1" USG gypsum corebd—met angle runners at flr & clg—joints stag & taped—1/16" IMPERIAL plaster wt 10 width 2 1/2"	TL-63-208 (s)	34		135		a-1141
2 hrs.	Solid Gypsum Vent Shaft—5/8" IMPERIAL plaster base Type X & veneer plaster—5/8" pl base lamin & screw att ea face to 1" USG gypsum corebd—joints stag—5/8"x1 3/8" angle runners horiz at flr clg & qtr points—one side with joints taped and 1/16" IMPERIAL plaster wt 9 width 2 3/8"	UL Des 21-2 hr (f)	N/A		128		a-1141
2 hrs.	Double Solid Gypsum—1/2" IMPERIAL plaster base & veneer plaster—pl base strip lamin & att with Type G screws to 1" USG gypsum corebd—met angle runners at flr & clg 1 1/4" to 3" apart—2" THERMAFIBER sound atten blkts stapled to corebd one side—1/16" IMPERIAL plaster—joints taped—perimeter caulked wt 13 width 6 3/8"	UL Des 26-2 hr (f) Field Test KSO-1090072-d (s)	54	54	178	Fire rating also applies without wool	a-1141

For wall furring applications, see page 6.

description

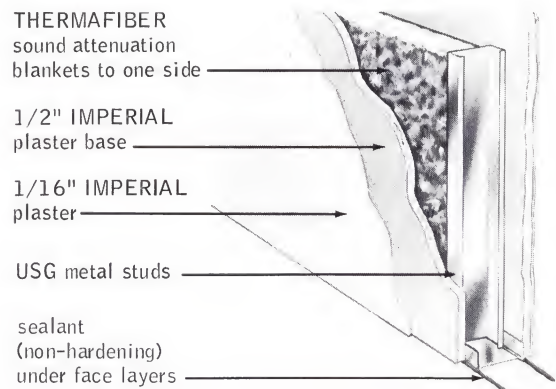
In the IMPERIAL Plaster Systems a thin veneer (1/16" to 3/32" thick) of specially formulated, high-strength gypsum plaster is applied over IMPERIAL Plaster Base. Either IMPERIAL Finish Plaster is applied in a single-coat system, or IMPERIAL Basecoat Plaster is used in a two-coat application as a superior base for IMPERIAL or DIAMOND* Finish Plaster, STRUCTO-GAUGE* Gauging Plaster and lime, or Keene's-lime-sand-float finish.

IMPERIAL Plaster Base, 4' wide, has a high-strength, high-density core, either regular or Type X fire-rated, covered with special absorption face paper designed for veneer plastering. Versatile IMPERIAL Base, as outlined below, is used with metal or wood studs, metal furring channels or in laminated gypsum construction to meet design requirements for interior partitions and ceilings; party, chase and shaft walls; furring and column fireproofing.

1. **USG® Metal Studs**, available in 5 widths (see Specifications, page 10), set in metal runners, with 1-layer, 1/2" thick IMPERIAL Base, Type X core, screw-attached to 2 1/2" studs 16" o.c., this partition has a 1-hour fire rating and suited for interior partitions and corridor walls. With double layer 1/2", IMPERIAL Base, Type X, attached by means of Type S screws to 2 1/2" or 3 3/8" studs spaced 24" o.c., a 2-hour fire rating plus sound control suitable for party walls is available. Where added partition width is required, double rows of USG Metal Studs are erected to provide chase walls with up to 20 3/4" net pipe chase width (see page 5).

2. **Metal Furring Channel**—With Insulating (foil-back) IMPERIAL Plaster Base screwed to USG Metal Furring Channels erected 16" o.c. direct to masonry or furred with brackets and 3/4" channels, this construction provides an excellent vapor barrier and offers significant insulating value as exterior wall furring (see page 6). A 3-hour fire-rated ceiling construction including beam protection is available with 5/8" Type X Base screw-attached to furred or suspended USG Metal Furring Channels (see separate System Folder for ceiling applications). Z-Furring Channels are also used to mechanically

(continued on page 2)



description (continued from page 1)

attach polystyrene or urethane rigid foam insulation to exterior walls. With $\frac{1}{2}$ " or $\frac{5}{8}$ " IMPERIAL Plaster Base screw-attached to these channels, the assembly provides a fully insulated wall at a cost competitive with many non-insulated furred walls.

3. Laminated Gypsum—Economical, space saving, 2-hour (estimated) $2\frac{1}{2}$ " solid partitions, suitable for interior dividers, are built with $\frac{5}{8}$ " IMPERIAL Type X Base job-laminated to both sides of 1" USG Coreboard secured in metal angle runners. With $\frac{1}{2}$ " IMPERIAL Plaster Base job-laminated to the outside of two coreboard rows, set in angle runners spaced $1\frac{1}{8}$ " to 3" apart, a double solid partition offers 2-hour fire resistance. Coreboards with greater separation offer enclosures for plumbing and mechanical installation. Stapling $1\frac{1}{2}$ " THERMAFIBER* Sound Attenuation Blankets to back of one coreboard row gives outstanding sound isolation (Field Test STC 54) for party walls (see table, page 1). With $\frac{5}{8}$ " Type X Base laminated each side of 1" coreboard and screw-attached to angle runners and bracing, this construction offers a 2-hour fire-rated enclosure for vent shafts in apartments or other buildings where shafts are widely separated.

4. USG Metal H-Studs—IMPERIAL Plaster Base applied in one or two layers over 2" Laminated Gypsum Coreboard and Metal H-Studs provides systems with up to 3-hour fire ratings. These are ideally suited for enclosing elevator shafts, stair wells and other vertical shafts in core areas of multi-story buildings (see separate System Folder for Shaft Wall applications).

5. Wood Framing—IMPERIAL Base may be nail or screw-attached to wood framing where 1 or 2-hour fire protection is needed. With base screw-attached to resilient channels, sound ratings up to 50 STC are obtained. For details refer to U.S.G. System Folder, IMPERIAL Plaster and Wood Framing.

6. PYROBAR* Partition Tile—With IMPERIAL Base and Plaster applied, 4-hour column fire protection is available (see separate System Folder).

function and utility

IMPERIAL Plaster Systems are designed for interior partitions and ceilings, exterior wall furring or wherever conventional plaster or drywall systems are used. The integrated components offer beautiful, hard surfaces ready for next-day decoration. IMPERIAL Plaster provides 3,000 psi compressive strength.

Durability—The high-strength, abrasion- and crack-resistant features of IMPERIAL Plaster offer the durability needed in high traffic areas, and obtainable with few other materials.

Fire Resistance—Incombustible components provide systems with fire-resistance ratings up to 2 hours (see table, page 1).

Sound Control—The systems offer sound isolation up to 54 STC; ideal for party walls.

Versatility—Adaptable to most dimensions or modules in virtually all types of buildings, these systems meet all normal design and job conditions.

Light Weight—The completed systems weigh appreciably less than masonry partitions of the same thickness.

Economy—Simple, inexpensive components erect quickly at a lower cost than conventional plaster systems. Finish is rapidly applied by machine or hand application.

limitations

1. Non-load bearing.
2. These assemblies should not be used where exposed to abnormal moisture or excessive humidity or temperature.
3. Maximum frame spacing and limiting heights should not be exceeded (see tables below).

maximum frame spacing

lath and plaster assembly	USG Metal Studs	USG Metal Furring Channel	USG Z-Furring Channel
$\frac{1}{2}$" IMPERIAL Plaster Base			
one layer, 1 & 2-coat pl.	16" or 24" (1)	16" or 24" (1)	24" (2)
two layer, 1 & 2-coat pl.	24"	24"	—
$\frac{5}{8}$" IMPERIAL Plaster Base			
one layer, 1-coat pl.	16" or 24" (1)	16" or 24" (1)	24" (3)
one layer, 2-coat pl.	24"	24"	24" (3)
two layer, 1 & 2-coat pl.	24"	24"	—

(1) 24" spacing requires joint treatment with DURABOND* Compound and PERF-A-TAPE* Reinforcing. (2) 2-coat plastering over 1" thick insulation only. Application over $\frac{3}{4}$ " thick insulation is not recommended. (3) Suitable over $\frac{3}{4}$ " and 1" thick insulation.

limiting height—metal stud assemblies

stud widths	stud spacing	maximum height (1)				
		partition— one layer		partition— two layer		furring— one layer
		(2)	(3)	(2)	(3)	(4)
USG Metal Studs (Standard)						
1⅝"	16" 24"	8'9" † 7'6"	9'6" † 8'3"	11'6" 9'3"	11'6" 9'3"	— —
2½"	16" 24"	11'3" † 9'9"	12'0" † 10'6"	14'3" 12'6"	15'3" 12'6"	9'3" † 8'3"
3⅜"	16" 24"	14'3" † 12'6"	15'3" † 13'3"	17'6" 15'3"	19'0" 16'0"	12'6" † 10'9"
4"	16" 24"	15'3" † 13'3"	16'0" † 14'0"	18'6" 16'0"	20'0" 16'9"	13'0" † 11'6"
6"	16" 24"	20'0" † 18'6"	20'0" † 19'6"	25'3" 22'0"	27'3" 23'3"	19'3" † 17'0"

20-Ga. USG Metal Studs

$2\frac{1}{2}$ "	16" 24"	14'0" † 12'3"	15'3" † 13'3"	15'0" 13'0"	16'0" 14'0"	12'9" 11'0"
$3\frac{3}{8}$ "	16" 24"	18'0" † 15'9"	19'3" † 16'9"	19'0" 16'6"	20'3" 17'3"	16'6" † 14'3"
4"	16" 24"	19'3" † 16'9"	20'6" † 17'9"	20'6" 17'6"	21'6" 18'6"	17'9" † 15'6"
6"	16" 24"	24'3" † 21'3"	25'9" † 22'6"	26'0" 22'9"	27'9" 23'9"	22'3" † 19'6"

(1) For $\frac{1}{2}$ " or $\frac{5}{8}$ " thick base and 5 psf uniform load perpendicular to partition or furring. (2) One-coat plastering. (3) Two-coat plastering. (4) Base applied to one face of studs only, one-coat plastering. † Requires joint treatment with DURABOND Compound and PERF-A-TAPE Reinforcing.

limiting height—other assemblies

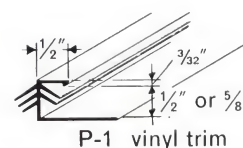
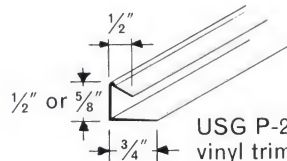
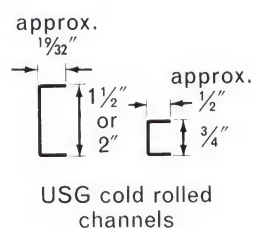
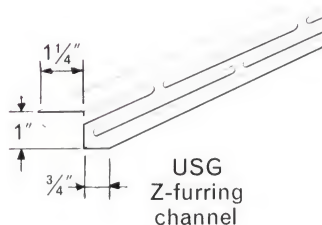
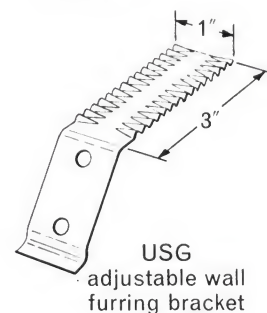
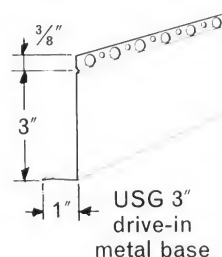
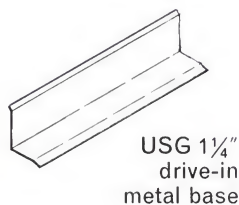
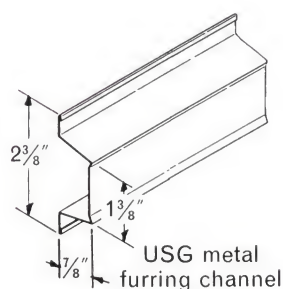
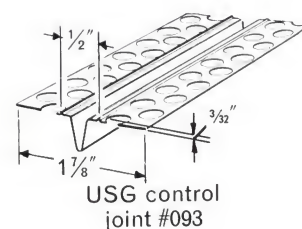
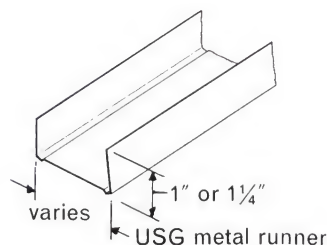
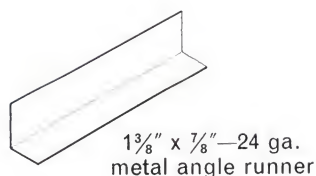
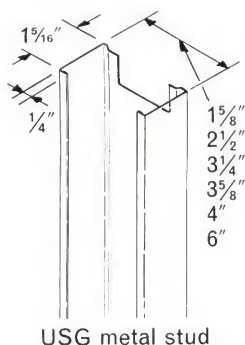
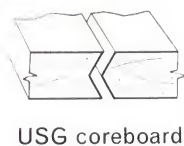
partition description	limiting height
chase walls	16'0"
$2\frac{1}{4}$ " solid (1)	10'0"
double solid	8'0"
exterior wall furring (2)	12'0"

(1) Using $\frac{1}{2}$ " IMPERIAL Base face layers. (2) Using Adjustable Wall Furring Brackets.

sound transmission loss—db

test no.	method	band center frequency—Hz																				STC	
		125	160	175	200	250	315	350	400	500	630	700	800	1000	1250	1400	1600	2000	2500	2800	3150		4000
TL-63-177	Lab	37	—	39	—	42	—	47	—	47	—	47	—	51	—	50	—	48	—	53	—	57	50
CK-654-66	Lab	31	40	—	44	46	48	—	52	52	53	—	53	54	53	—	53	54	55	—	57	59	53
KSO-1090072-a	Field	26	29	—	37	39	45	—	48	48	49	—	52	54	55	—	52	52	53	—	55	56	49
KSO-1090072-d	Field	38	34	—	43	48	48	—	47	50	52	—	54	55	57	—	59	57	59	—	62	64	54
CK-664-1	Lab	27	32	—	39	40	42	—	44	44	46	—	47	45	45	—	46	44	44	—	46	49	45

components



see "plaster bases" product catalog for
full description on accessories & sizes



3/8" USG brand screw—type S—pan head



3/8" USG brand screw—type S-12—pan head



7/8" USG brand screw—type S—bugle head



1" USG brand screw—type S—bugle head



1 1/4" USG brand screw—type S—bugle head



1 5/16" USG brand screw—type S—bugle head



1 5/8" USG brand screw—type S—bugle head



2 1/4" USG brand screw—type S—bugle head



2 1/4" USG brand screw—type S—trim head



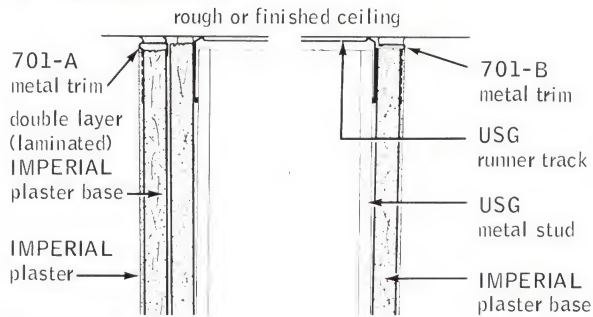
1 1/2" USG brand screw—type G—bugle head

details/metal stud

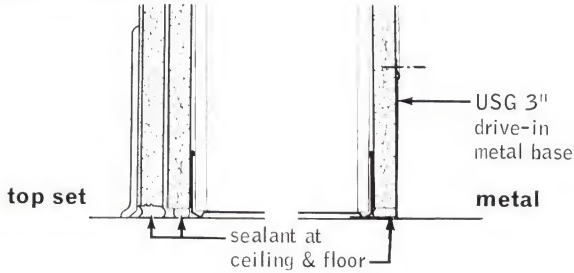
scale: 3" = 1'-0"

metal stud partitions

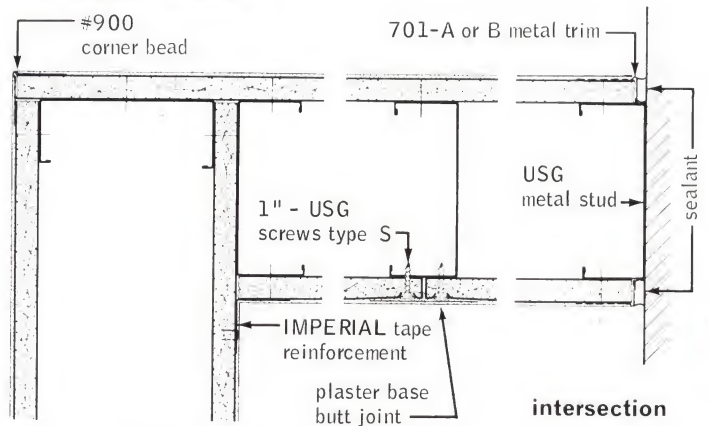
ceiling attachment



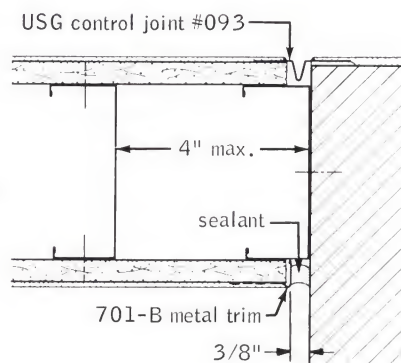
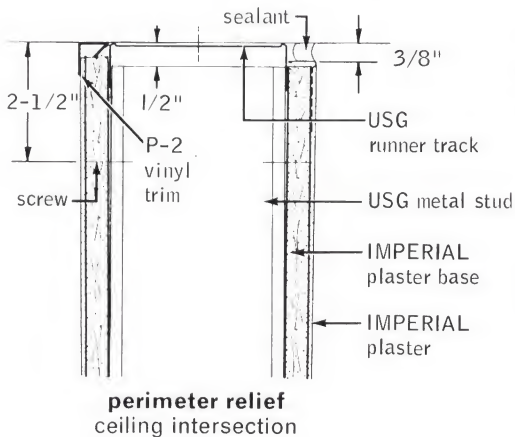
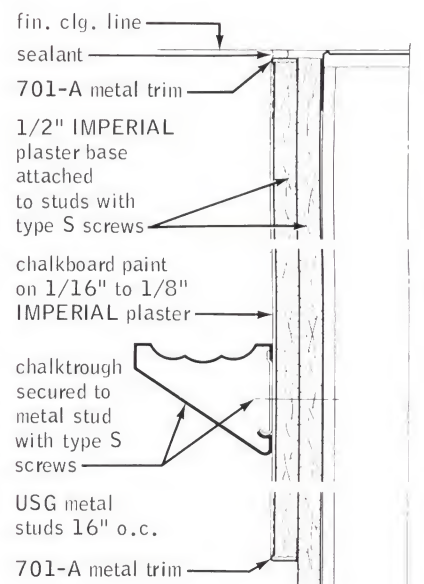
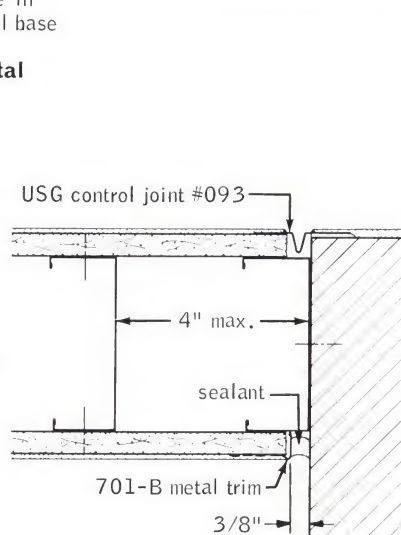
floor attachment



wall plan sections

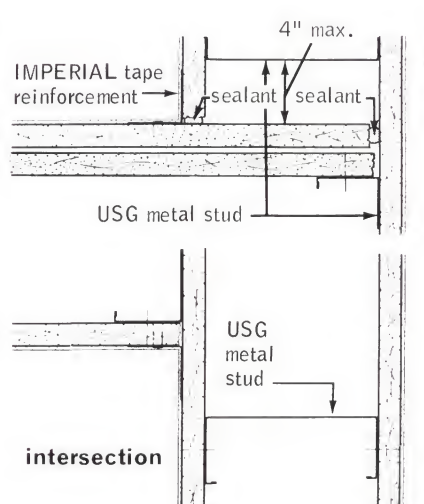
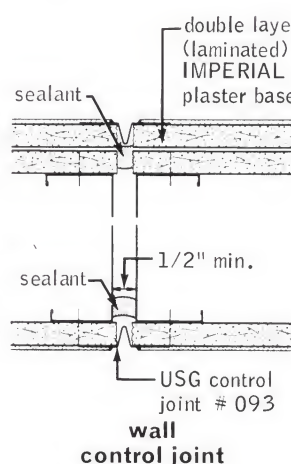
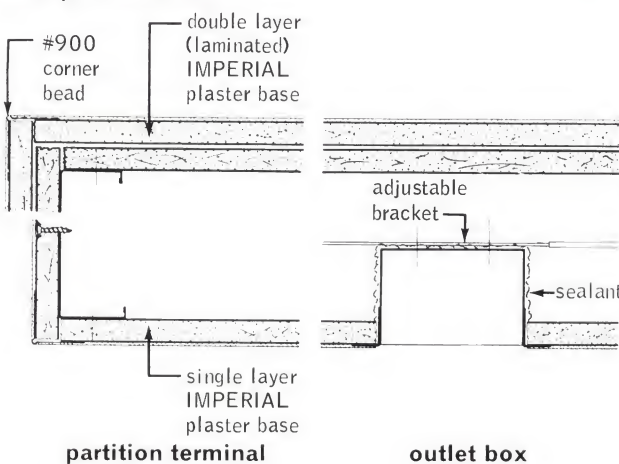


partition corner



perimeter relief and control joint wall or column intersection

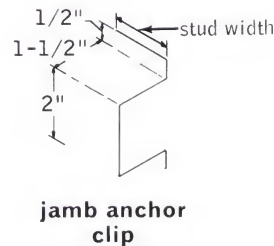
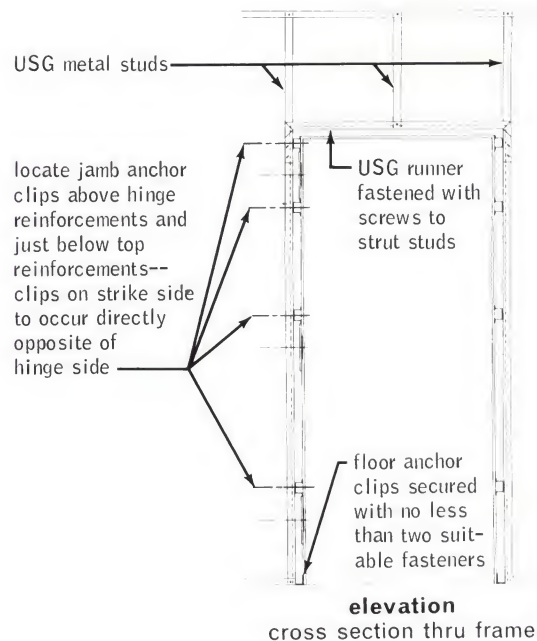
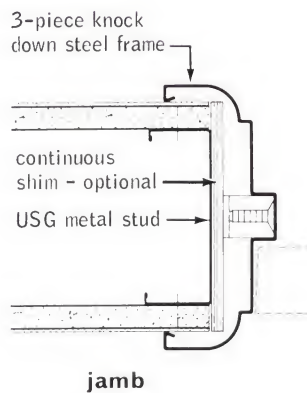
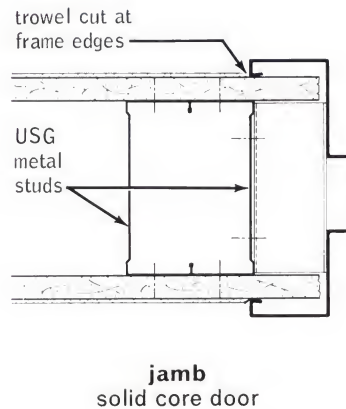
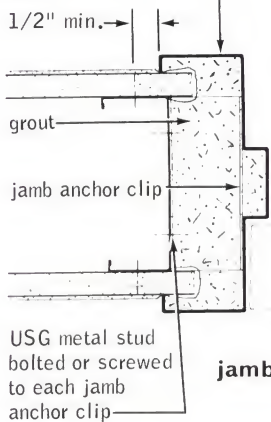
wall plan sections



details/metal stud

door frames

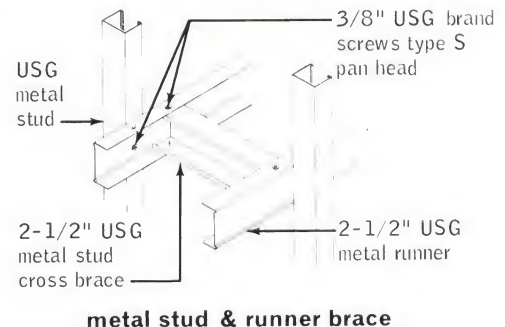
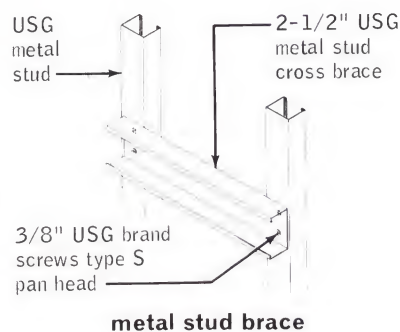
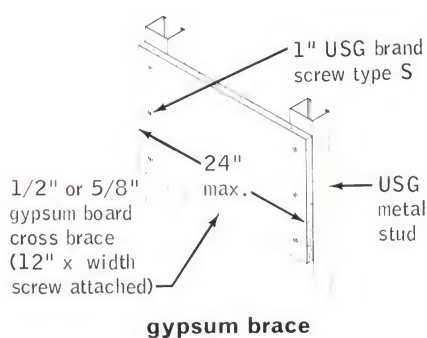
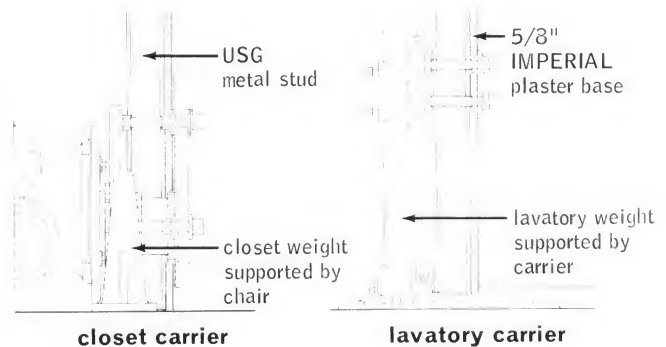
standard reveal type frame



chase walls

Chase walls, as vertical shafts encasing the usual plumbing supply and wastelines, vent ducts and electrical conduits, require more free space than can be provided within the usual partition assembly.

The metal stud chase wall may be formed of two USG Metal Studs bracketed together with 12" x chase width braces of 1/2" or 5/8" IMPERIAL Plaster Base. As an alternate, 2 1/2" metal stud cross braces screw-attached to chase wall studs may be used. When chase wall studs are not directly opposite, metal stud cross braces 24" o.c. are securely anchored to a continuous horizontal 2 1/2" runner screw-attached to chase wall studs within the cavity. Limiting height for this chase wall is 16'; vertical brace spacing 48" o.c. max.



exterior wall furring/metal channels

description	relative cost index	comments	folder reference
Either 3/4" or 1" (1) polystyrene or (2) urethane rigid foam insulation—USG Z-Furring Channels appl vert 24" o.c.—1/2" IMPERIAL plaster base screw attached to channels, 1/16" IMPERIAL veneer plaster finish	(1) 167 (2) 170	Surface membrane isolated from masonry	a-1141
USG Metal Furring Channels 16" o.c., 1/2" Insulating IMPERIAL plaster base screw attached, 1/16" IMPERIAL veneer plaster finish	94	May be attached direct or additionally furred out on 3/4" horiz. C.R. channels; good vapor barrier	a-1141
Either 1 1/2" (1) polystyrene or (2) urethane rigid plastic foam insulation, bonded to masonry wall, 1/2" IMPERIAL plaster base bonded to rigid foam, 1/16" IMPERIAL veneer plaster finish	(1) 183 (2) 193	Excellent insulation and moisture barrier characteristics. No pipe chase capacity	a-1141

USG Metal Furring Channels

Exterior walls are readily furred using IMPERIAL Plaster Base screw-attached to USG Metal Furring Channels erected vertically 16" o.c. Channels are either fastened directly to masonry or furred using USG Adjustable Wall Furring Brackets and 3/4" channels to provide additional space for pipes, conduits or ducts. With the Adjustable Wall Furring Bracket, the limiting height is 12'.

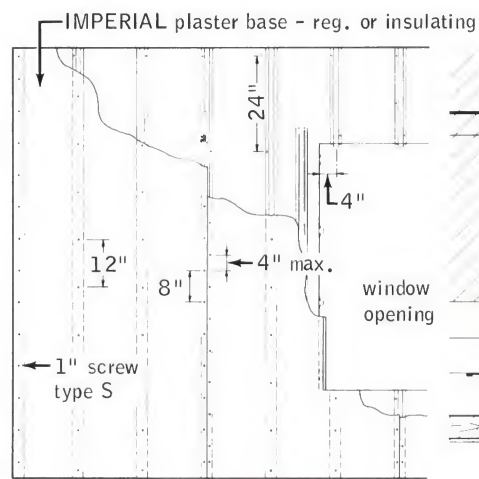
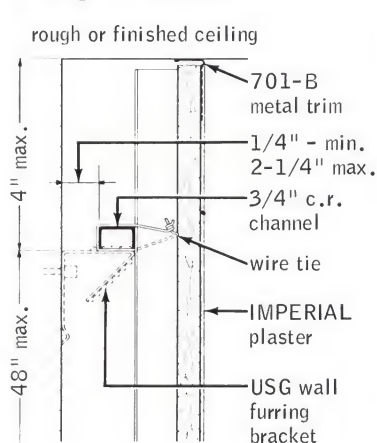
thermal resistance (R) value

Insulating IMPERIAL Plaster Base (1)

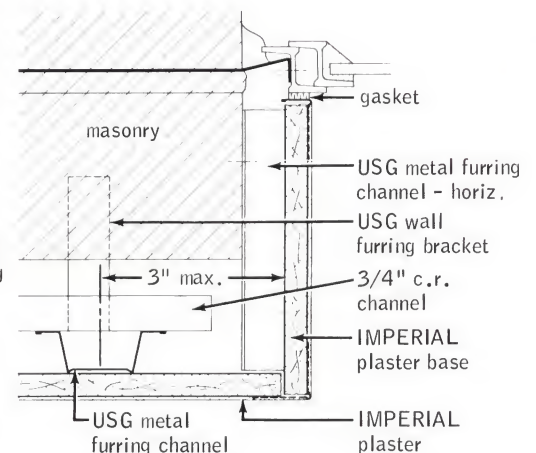
1/2" thickness	3.93
5/8" thickness	4.04

(1) Resistances are based on vertical application, inside still air film, board thickness with one reflective surface facing a 3/4" min. still air space.

ceiling attachment

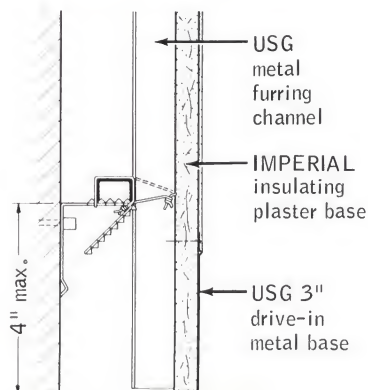


elevation—vertical application

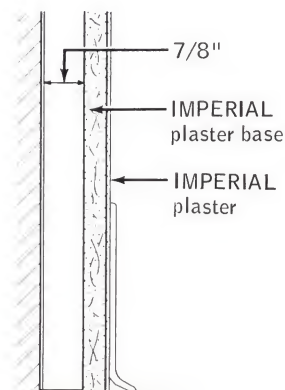


metal window jamb

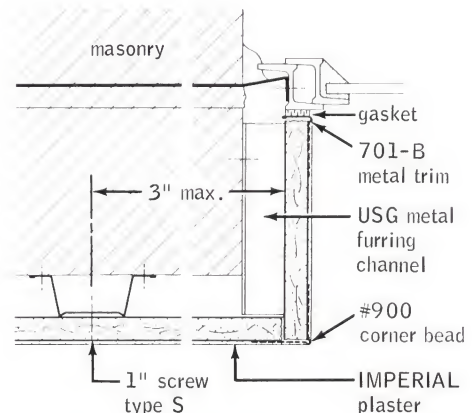
floor attachment



metal



top set



metal window jamb

USG Z-Furring Channels

In this assembly, USG Z-Furring Channels are used to mechanically attach polystyrene or urethane rigid foam insulation to exterior walls. IMPERIAL Plaster Base is screw-attached to the channels and finished with a thin veneer of high-strength IMPERIAL Plaster. USG Z-Furring Channels, suitable for $\frac{3}{4}$ " or 1" thick insulation, are formed from hot-dipped galvanized steel for added corrosion resistance.

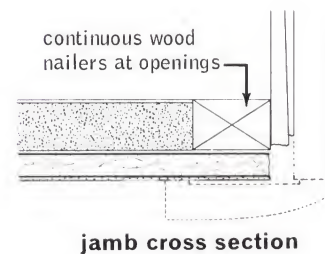
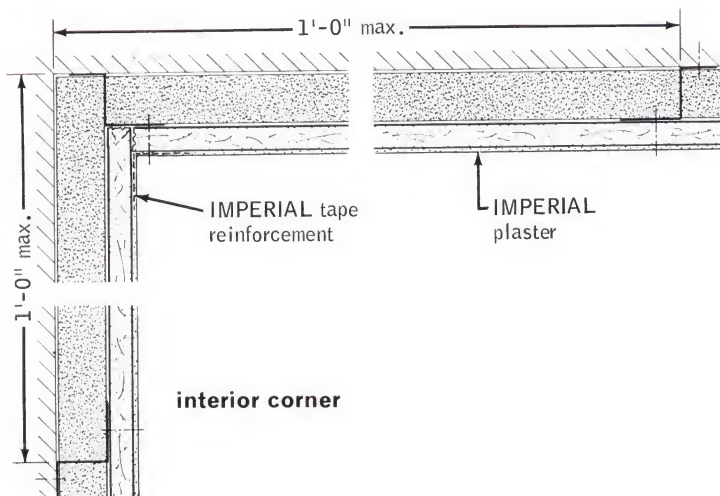
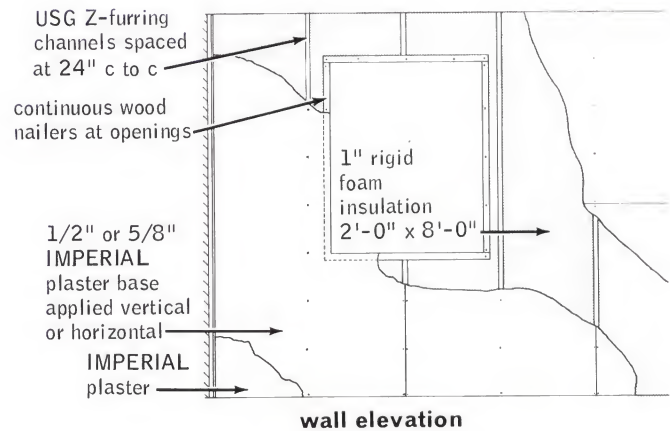
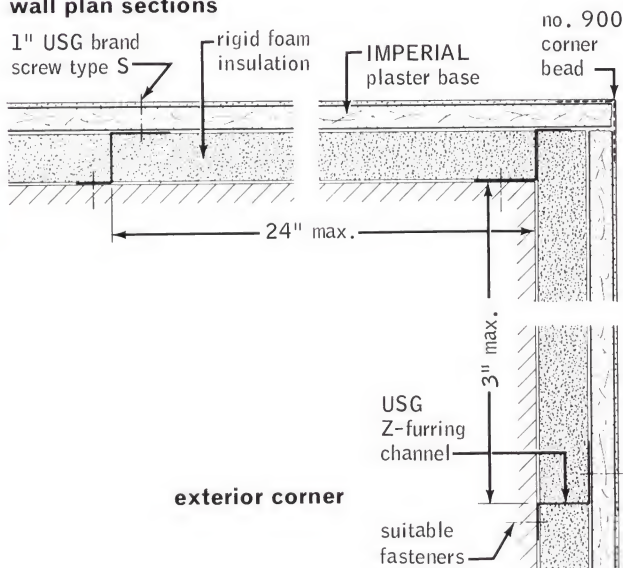
This system provides a self-furred solid backup for IMPERIAL Base. The surface membrane is isolated to a great degree from the exterior wall. The rigid foam has good moisture resistance properties and thus provides effective vapor resistance for the wall assembly. Thermal insulation values (U-factors) for various assemblies are shown at right.

design heat transmission coefficients (U-factors)

wall construction	nom. wall thickn.	unfin. wall	furred wall† (no insul.)	wall insulated with								
				STYROFOAM SM			STYROFOAM FR or DORVON FR 100			THURANE		
				$\frac{3}{4}$ "	1"	1½"	1"	1½"	2"	$\frac{3}{4}$ "	1"	1½"
4" face brick 8" block	12"	.42	.26	.15	.13	.09	.15	.12	.09	.13	.11	.08
4" face brick 4" com. brick	8"	.48	.30	.16	.14	.10	.16	.12	.10	.14	.11	.08
SCR brick	6"	.67	.35	.17	.15	.11	.17	.13	.11	.15	.12	.08
poured conc. 140 lb./cu. ft.	8"	.70	.37	.18	.15	.11	.18	.13	.11	.15	.12	.08
conc. block sand & gravel aggregate	8"	.55	.33	.17	.14	.10	.17	.13	.10	.14	.11	.08
	12"	.49	.31	.16	.14	.10	.16	.12	.10	.14	.11	.08

†Interior wall finish: $\frac{1}{2}$ " IMPERIAL Base and Plaster. All U-factors expressed in Btu/sq. ft./hr/°F, 75°F mean insulating temperature.

wall plan sections



exterior wall furring/rigid foam

scale: 3"=1'-0"

IMPERIAL Plaster—rigid foam insulation

This system consists of IMPERIAL Plaster Base and polystyrene or urethane rigid foam insulation adhesively bonded to the exterior wall. IMPERIAL Plaster, applied over the plaster base in one or two coats, offers a strong, abrasion-resistant interior surface.

The insulation is available in several thicknesses to meet most insulation and dimensional design requirements (see table page 7). Polystyrene insulations are readily bonded to unit masonry and poured or precast concrete with either a latex-modified portland cement adhesive or a special insulation mastic. For urethane and plaster base application, only insulation mastic is used.

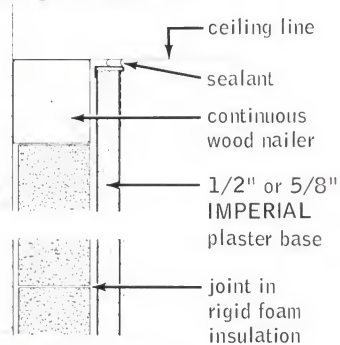
adhesive application methods

adhesive and method	insulation applied to			plaster base applied to insulation
	unit masonry	formed concrete	precast concrete panels	
portland cement mortar, mod. (1)(3) • push box to insulation, $\frac{3}{16}$ " thick layer	X	X		
Insulation Mastic No. 11 (2) • notched spreader to wall or insulation within 20 min. • troweled spot to wall or insulation within 20 min.—spots: $1\frac{1}{2}$ " diam., 1" peak ht., 8" to 12" o.c. • mechanical or pneumatic adhesive applicator to insulation within 20 min., $\frac{3}{16}$ " diam. beads 3" from long edge of board • notched spreader to insulation or plaster base within 20 min. • troweled spot to plaster base within 20 min.—spots: $1\frac{1}{2}$ " diam., 1" peak ht., 12" o.c., also 2" from taped edges & 6" o.c. • mechanical or pneumatic adhesive applicator to plaster base within 20 min. 4 longitudinal $\frac{3}{16}$ " diam. beads, 2" from edge, 11" o.c.	X X X	X X X	X X X	 X X X

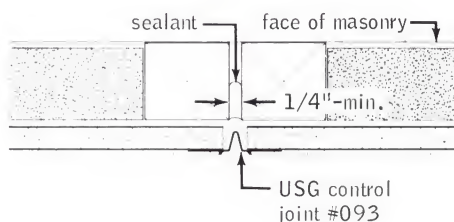
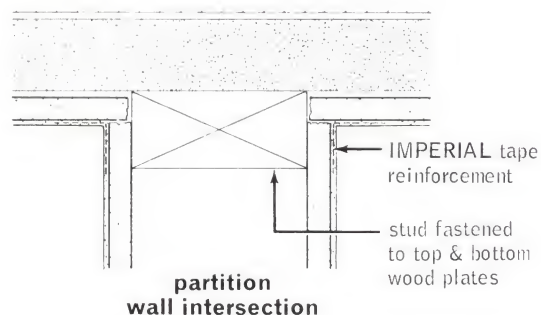
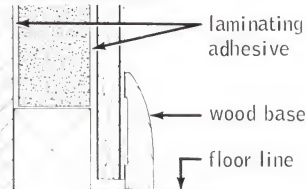
(1) Modify with STYROCRETE Latex Mortar Additive. (2) Not suitable for dense, non-absorbent surfaces. (3) Not suitable for rigid urethane insulation or plaster base application.

adhesive application details

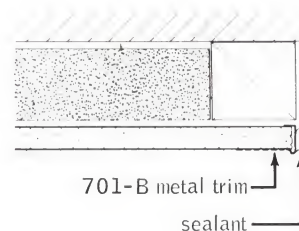
ceiling attachment



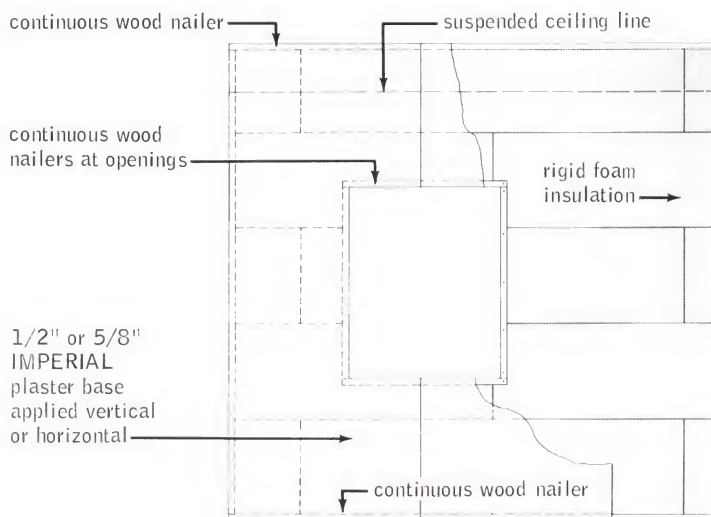
floor attachment



USG control joint #093



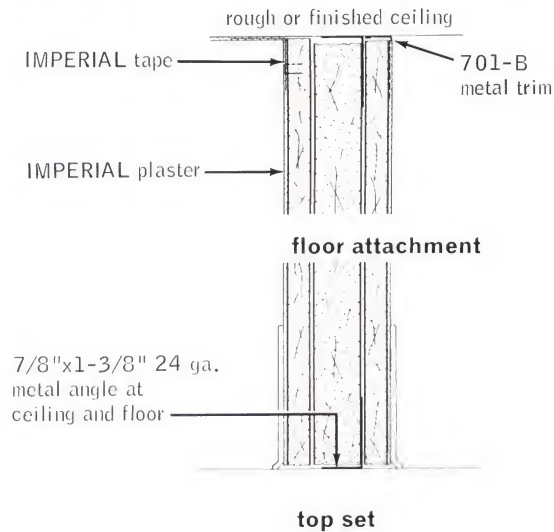
isolated column or masonry wall



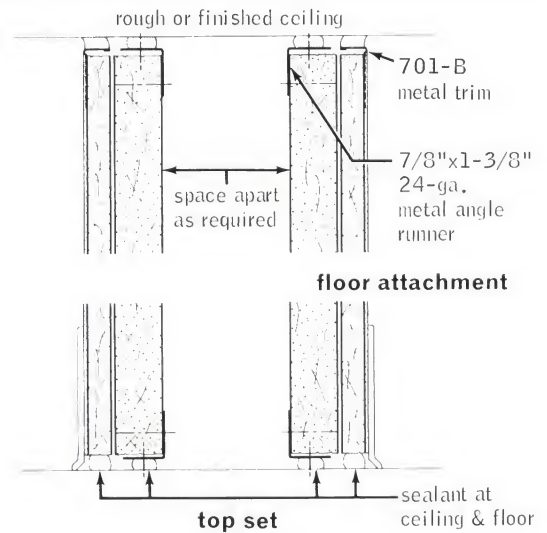
wall elevation

details/solid gypsum

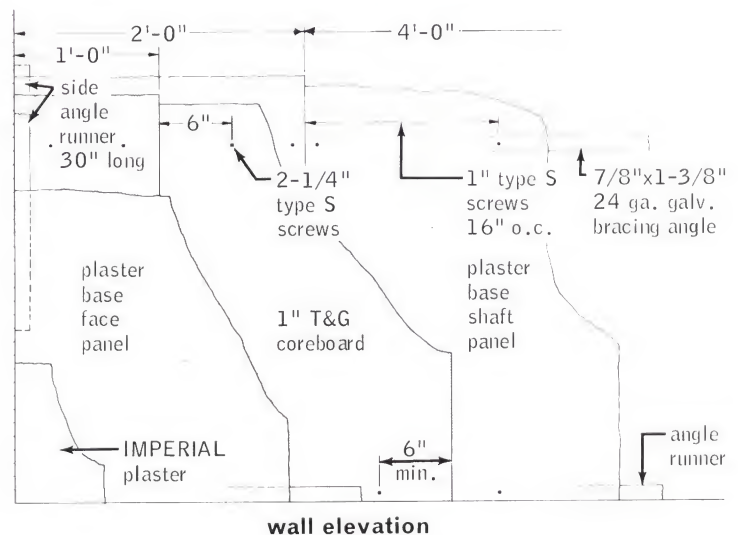
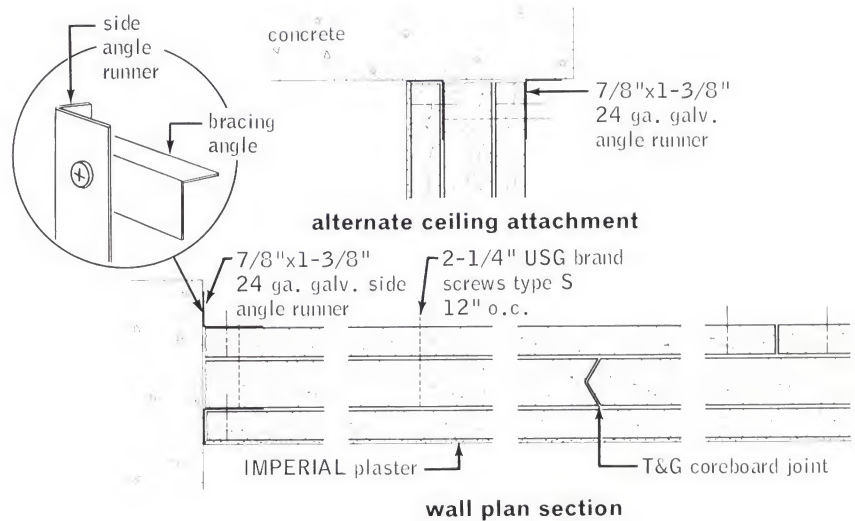
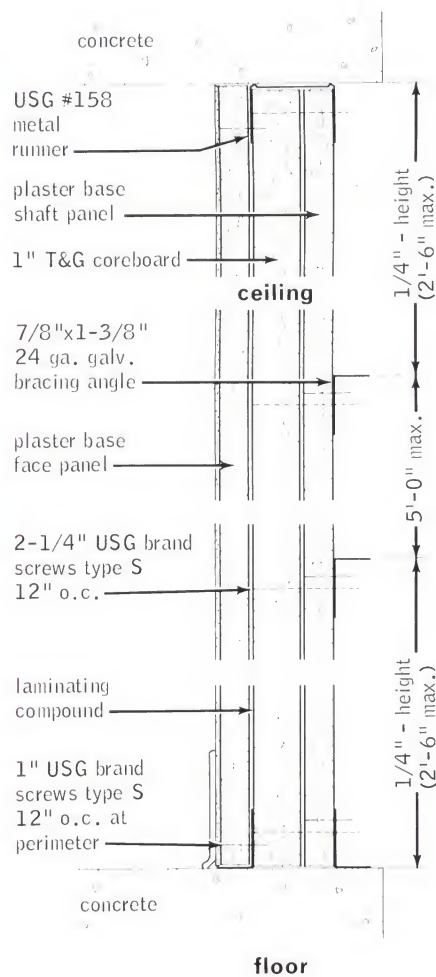
2 1/4" solid partitions—ceiling attachment



double solid partitions—ceiling attachment



2 1/2" vent shaft



specifications

notes to architect

1. Metal door and borrowed-light frame material should be at least 16-ga. steel, shop primed, with throats accurately formed to overall thickness of partition. They should be anchored at floor with 14-ga. steel plates welded to trim flanges, with provision for two power-driven anchors or equal per plate. Jamb anchor and core centering clips should be 18-ga. steel welded in jamb and head (see details). Studs are screw-attached to jamb anchor clips.

Door frame struts of 1" x 1/4" hot-rolled bar stock should extend from at least 16" below head, to the ceiling. Where struts are not required, frame should be temporarily braced level and plumb until partition is erected.

Grouting is recommended for all door frames and is required for heavy (over 50 lbs. with hardware) or oversize doors which also require use of door closers and bumpers. Grout should be raked out to allow insertion of lath into frame; lath must not terminate against trim. Plaster should be grooved at frame.

2. Plaster base surfaces should be isolated with control joints or other means where: (a) partition abuts a structural element (except floor) or dissimilar wall or ceiling; (b) construction changes within the plane of the partition; (c) partition run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.

3. Penetrations of the lath-and-plaster diaphragm, such as door frames and borrowed-light openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

4. Additional chases can be provided in metal studs (except in fire-rated construction) by cutting round holes up to 3/4 of stud width, spaced 12" apart.

5. Electrical Boxes—Depth of electrical boxes should not exceed 1 1/2" for 2 1/4" Solid Partition and 2 1/2" for Double Solid Partition when 1 1/8" minimum air space is specified.

6. Fixture Attachment—Lightweight fixtures and trim should be installed by drilling and inserting expandable anchors in plaster base for attachment screws. Wood or metal mounting strips for cabinets and shelving should be attached with toggle bolts through the plaster base near studs.

7. Ceramic Tile—IMPERIAL Plaster Base is not recommended as a base for the adhesive application of ceramic, metal and plastic tile unless the edges are protected from wetting and the entire surface is sealed with adhesive or other material recommended by the tile manufacturer. SHEETROCK® W/R Gypsum Wallboard is recommended for this use (see U.S.G. Product Folder in this series on Gypsum Wallboard).

8. Where these partitions are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs, such as at electrical boxes, and at the perimeter of the partition. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. Door and borrowed-light openings are not recommended in sound control partitions.

9. Proper sealing of IMPERIAL Plaster surfaces before painting is essential.

10. Zinc alloy accessories are recommended where corrosion due to high humidity or saline content of aggregate is possible.

11. During periods of low outside temperature, condensation may form on exterior walls, collecting airborne dirt to produce photographing or shadowing over fasteners and furring. This is a natural phenomenon which occurs through no fault in the products.

12. See U.S.G. product folders in this series: Gypsum Plasters Folder for Plaster Specifications; Plaster Bases & Accessories Folder for General Lathing Specifications; Paint Products Folder for Paint Specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

a. In cold weather, all glazing shall be completed and the building heated to a minimum of 55°F. Before plaster base installation, ventilation shall be provided to carry off excess moisture.

b. When low humidity, high temperatures and rapid drying conditions exist during plaster base and plaster application, DURABOND Joint Compound and PERF-A-TAPE Reinforcement shall be used on all joints, internal corners, trim and corner beads and allowed to set and dry thoroughly before plaster application.

Part 2: products

2.1 materials

- a. IMPERIAL Plaster Base (1/2") (5/8") thick, 48" wide, square edge, (Regular) (Insulating) (Type X), lengths as required.
- b. USG Gypsum Coreboard—1" thick, 24" wide, "V" T&G edge, lengths as required.
- c. Laminating Adhesive—USG Joint Compound-Taping mixed in accordance with manufacturer's directions.
- d. Fasteners—3/8", 7/8", 1", 1 1/4", 1 5/16", 1 5/8" and 2 1/4" USG Brand Screws Type S; 1 1/2" USG Brand Screws Type G.
- e. USG Metal Studs—(1 5/8"), (2 1/2") (3 5/8") (4") (6"), lengths as required.
- f. USG Metal Runner—(1 5/8") (2 1/2") (3 5/8") (4") (6") for USG Metal Studs.
- g. USG Metal Angle Runner, 1 3/8" x 7/8" x 24-ga.
- h. USG Metal Furring Channel.
- i. IMPERIAL Tape—(Type P) (Type S) for joint reinforcement.
- j. USG Cold Rolled Channels (3/4") (1 1/2") (2").
- k. USG Adjustable Wall Furring Bracket.
- l. Accessories—USG #900 Corner Bead, (701-A) (701-B) Metal Trim, Control Joint #093, 16-ga. Tie Wire.
- m. THERMAFIBER Sound Attenuation Blankets.
- n. USG Z-Furring Channel.
- o. USG (1 1/4") (3") Drive-in Trim.
- p. USG Acoustical Sealant.
- q. Insulation—(STYROFOAM SM) (STYROFOAM FR) (DORVON FR-100) (THURANE) Insulation (3/4") (1") thick, as manufactured by the Dow Chemical Company.
- r. USG P-1 Vinyl Trim.
- s. USG P-2 Vinyl Trim.
- t. DURABOND Joint Compound and PERF-A-TAPE Reinforcement.

Part 3: execution

3.1 metal stud partition system erection

Attach metal runners at floor and ceiling to structural elements with suitable fasteners located 2" from each end and spaced 24" o.c., or to suspended ceilings with toggle or molly bolts spaced 16" o.c.

Position studs vertically, engaging floor and ceiling runners, and spaced (16") (24") o.c. When necessary, splice studs with 8" nested lap and one positive attachment per stud flange. Place studs in direct contact with all door frame jambs, abutting partitions, partition corners and existing construction elements. Where studs are installed directly to exterior walls and possibility of water penetration through walls exists, install asphalt felt strips between studs and wall surfaces.

Anchor all studs adjacent to door and window frames, partition intersections, and corners to ceiling and floor runner flanges with USG Metal Lock Fastener tool. Securely anchor studs to jamb and head anchor clips of door or borrowed-light frames by bolt or screw attachment (not required for frames with structural bar struts). Over metal door and borrowed-light frames, place a cut-to-length section of runner track, with a web-flange bend at each end, horizontally and secure with one positive attachment per flange. Position a cut-to-length stud (extending to the ceiling runner) at the location of vertical joints over door frame header.

3.2 single layer plaster base erection

Apply plaster base (vertically) (horizontally). Position all edges over stud flanges for vertical application; all ends over stud flanges for horizontal application. To maintain a true surface plane, arrange direction of application so leading edge of base is attached first to open end of stud flange. Use maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together. Stagger joints on opposite sides of partition.

For vertical application of base, space screws 12" o.c. in field of base and 8" o.c. staggered along vertical abutting edges. For horizontal base application, space screws 12" o.c. in field and along abutting end joints.

3.3 double layer plaster base erection

For screw attachment, space screws 16" o.c. for both layers. Apply both layers of plaster base vertically with joints in face layer offset from base layer joints. For $\frac{5}{8}$ " base, use 1" screws for base layer and $1\frac{1}{8}$ " screws for face layer. For $\frac{1}{2}$ " base, use $\frac{3}{8}$ " screws for base layer and $1\frac{1}{16}$ " screws for face layer.

In double-layer laminated construction, attach base layer with 1" type S screws spaced 8" o.c. at joint edges and 12" o.c. in field. Apply face layer vertically with USG Joint Compound-Taping spread on back side, joints staggered approx. 12" and fastened to base layer with $1\frac{1}{2}$ " type G screws. Drive screws approx. 2' from ends and 4' o.c. in field of panel, 1' from ends and 3' o.c. along a line 3" from vertical edges.

3.4 chase wall erection

Align two parallel rows of floor and ceiling runners spaced apart as detailed. Attach to concrete slabs with concrete stub nails or power-driven anchors 24" o.c., to suspended ceilings with toggle or molly bolts 16" o.c., or to wood framing with suitable fasteners 24" o.c.

Position metal studs vertically in runners, (16") (24") o.c., with flanges in the same direction, and with studs on opposite sides of chase directly across from each other. Anchor all studs adjacent to door and window frames, partition intersections and corners to floor and ceiling runner flanges with USG Metal Lock Fastener tool.

Cut cross bracing to be placed between rows of studs from plaster base, 12" high by wall width. Space braces 48" o.c. vertically and attach to stud webs with six type S screws per brace. If larger braces are used, space screws 8" o.c. max. on each side. Attach single-layer or base-layer plaster base with ($\frac{7}{8}$ ") (1") type S screws spaced 12" o.c. in field and 8" o.c. staggered at vertical joints.

Bracing of 2½" metal studs may be used in place of gypsum braces. Anchor web at each end of metal brace with two $\frac{3}{8}$ " pan head screws. When chase wall studs are not opposite, install metal stud cross braces 24" o.c. horizontally and securely anchor each end to a continuous horizontal 2½" runner screw-attached to chase wall studs within the cavity.

3.5 wall furring channel attachment—direct

Attach metal furring channels vertically, spaced (16") (24") o.c., to masonry or concrete surfaces with hammer-set or power-driven fasteners or concrete stub nails staggered 24" o.c. on opposite flanges. Where furring channel is installed directly to exterior wall and a possibility of water penetration through walls exists, install asphalt felt protection strip between furring channel and wall.

3.6 wall furring channel attachment—bracketed

Attach adjustable wall furring brackets with serrated edges up, 36" o.c. horizontally, 48" o.c. vertically, within 4" of columns or other abutting construction, within 6" of floor and ceiling, and as required above and below windows, with (2" cut nail in mortar joints of brick, clay tile or concrete block, or in field of lightweight aggregate blocks) ($\frac{5}{8}$ " concrete stub nails, power-driven nails or other suitable fasteners in poured concrete). Place fastener in top hole of bracket.

Lay cold-rolled channels horizontally with flanges down, on furring brackets, plumb with other channels, and tie with double-strand 16-ga. or triple-strand 18-ga. wire, bend down excess bracket length. Erect metal furring channel vertically, spaced (16") (24") o.c. and tie with double-strand 16-ga. or triple-strand 18-ga. wire at each channel junction.

At outside corner attach plaster base to short horizontal mitered furring channels or to a vertical metal stud.

3.7 Z-furring channel attachment

Erect rigid foam insulation vertically and hold in place with Z-furring channels spaced 24" o.c. Except at exterior corners, attach narrow flanges of furring channels to wall with concrete stub nails or power-driven fasteners spaced 24" o.c. At exterior corners, attach wide flange of furring channel to wall with short flange extending beyond corner; start from this furring channel with a 3" strip of insulation followed by furring channel in the normal manner. At interior corners, space second channel no more than 12" from corner and cut insulation to fit.

Apply plaster base (vertically) (horizontally) with vertical joints occurring over channels. Attach plaster base with 1" type S screws spaced 12" o.c. in field and at edges, and with $1\frac{1}{4}$ " type S screws spaced 12" o.c. at exterior corners. Use DURABOND Compound and PERF-A-TAPE Reinforcement on all joints, interior corners, trim and corner beads and allow to set and dry thoroughly before finish plaster application.

3.8 2-1/4" solid partition system erection

Align floor and ceiling angle runners and secure with suitable fasteners spaced 24" o.c. Fit coreboard accurately between floor and ceiling runners and install vertically with tongue

edge leading. Attach to runners with two 1¼" type S screws placed 3" in from each edge. Erect succeeding panels in the same manner.

At partition intersections, nail coreboard together with 10d nails spaced 24" o.c. Insert panels in jamb anchor clips at all door frames, borrowed-light frames and partition terminals and spot-grout at clip locations.

Cut plaster base to full floor-to-ceiling height. Apply laminating adhesive to back of plaster base and laminate in place using moderate pressure to insure adequate bond. Offset panel joints at least 3" from coreboard joints. Secure plaster base to coreboard with 1½" type G screws driven 2" from ends and 4" o.c. in field, and 1" from ends and 3" o.c. along a line 3" from edges.

3.9 double solid partition system erection

Align two parallel rows of floor and ceiling angle runners positioned back-to-back, spaced (1⅛" min.) apart. Attach to floor and ceiling with suitable fasteners spaced 24" o.c. *Balance of specification per 3.8 above.*

3.10 vent shaft erection

Use metal angle runners at floor and either metal angle runners or 1⅝" USG Metal Runners at ceiling. Align runners and attach through webs or short legs to structural supports with suitable fasteners spaced 24" o.c.

Mark locations for horizontal cross bracing on sidewalls; they must be 2'6" from floor and ceiling and no more than 5' o.c. Center 30" angle runners at these locations and attach to sidewalls as above. Position long leg of horizontal angle braces for plaster base attachment and attach angle braces to sidewall runners with 1" type S screws.

Apply ⅝" plaster base vertically and fasten to angles with 1" type S screws spaced 16" o.c.; if USG Metal Runner is used at ceiling, no attachment is required at that location. Erect coreboard vertically and laminate to plaster base with vertical joints staggered 12" from plaster base joints.

Position angle runners at floor (and ceiling if required) with long leg against the coreboard. Attach to floor (and ceiling) with suitable fasteners spaced 12" o.c. and to coreboard with 2¼" type S screws spaced 12" o.c. but no closer than 6" from coreboard edges.

Laminate ⅝" plaster base vertically to coreboard with vertical joints staggered 12" from coreboard joints. Attach to angles around perimeter with 1" type S screws spaced 12" o.c.

3.11 accessory application

When low humidity, high temperatures and rapid drying conditions exist, use DURABOND Joint System on all joints, internal corners, trim and corner beads and allow to set and dry thoroughly before applying finish plaster.

a. Reinforcing Tape—Apply over full length of all plaster base joints; do not overlap at intersections.

Type P Tape—Firmly press along entire length to insure firm wrinkle-free attachment.

Type S Tape—Apply with spring-driven stapler using ⅜" staples. Use two staples at each end of tape and stagger intermediate staples 24" along length of tape. At wall-ceiling intersections and interior corners, staple tape 24" o.c. along ceiling edge or on one edge only. For fire-rated assemblies, staple tape 8" o.c.

b. Laminating Adhesive—Spread to provide ½" adhesive beads 4½" o.c. for full sheet lamination. For strip lamination, apply adhesive in vertical strips of four ½" beads 1½" to 2" o.c. Space strips 24" o.c.

c. Corner Bead—Reinforce all vertical and horizontal exterior corners with corner bead fastened with staples 12" o.c. on both flanges along entire length of bead.

d. Casing Bead—Where wall or partition terminates against masonry or other dissimilar material, apply 701-B metal trim over plaster base and fasten with staples 12" o.c. Where exposed casing is required, apply 701-A in same manner.

e. Screws—Power-drive and set so screwhead is flush with surface of plaster base without tearing through face paper.

f. Control Joints—Break plaster base behind joint and back by double studs; attach control joint to plaster base with staples spaced 12" o.c. on both flanges along entire joint length.

g. Drive-In Metal Base—Install over plaster base to provide full plaster grounds. Notch all angles to form a neat miter and butt ends evenly in continuous runs. Secure base by engaging short flange beneath runner.

h. P-1 Vinyl Trim—Slip trim over plaster base with long flange behind base. Install base with trim firmly abutting surface.

i. P-2 Vinyl Trim—Provide ⅛" to ⅜" relief for trim at plaster base angle. Remove protective paper from adhesive on web of trim and insert trim into relief, adhesive against wall surface. Press upward until long flange seats against ceiling.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured and/or sold by that company: DIAMOND, STRUCTO-GAUGE (plaster); IMPERIAL (plaster and base, joint reinforcement); USG (metal products, gypsum coreboard, adhesives); SHEETROCK (gypsum wallboard); THERMAFIBER (insulation products); DURABOND, PERF-A-TAPE (joint treatment); PYROBAR (partition tile).

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NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Stl Stud—Resil ½" IMPERIAL* plaster base Type X & veneer plaster—2½" TRUSSTEEL studs 24" o.c.—RC-1 chan both sides spaced 16" o.c. att with ¾" Type T pan head screws—pl base att with 1" Type S screws—1/16" IMPERIAL plaster—joints taped wt 7 width 4¾"	T-4831-OSU (f) TL-69-288 (s) TL-69-278 (s)		36 48	135 150	TL-69-278 based on assembly with 1½" THERMAFIBER* sound attenuation blankets	a-1151

wall furring application

—	TRUSSTEEL Studs 24" o.c.—RC-1 chan spaced 16" o.c. att with ¾" Type T screws—insul pl base att with 1" Type S screws—1/16" IMPERIAL plaster—joints taped	—	—	—	85	Free standing; allows pipe chase clearance; good vapor barrier	a-1151
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description

These lightweight, non-load bearing partition assemblies consist of open-web TRUSSTEEL Studs, RC-1 SHEETROCK* Resilient Channels, and IMPERIAL Plaster Base and Plaster. The studs are set into TRUSSTEEL Snap-In Runner Tracks anchored to floor and ceiling. RC-1 Channels are screw-attached to the studs, then faced with IMPERIAL Base, screw-attached to the channels and finished with IMPERIAL Plaster.

Attachment with specially designed RC-1 Metal Channels isolates the plaster base and plaster diaphragm from the studs. This resilient mounting, along with the use of THERMAFIBER* Sound Attenuation Blankets within the cavity, provides excellent sound attenuation for the assemblies.

TRUSSTEEL Studs utilize a truss design for superior strength and maximum chase space. They are fabricated for these assemblies in five widths and are factory-cut to job lengths.

IMPERIAL Plaster Base is a special gypsum lath in large sheet form, with strength and absorption characteristics designed for use with IMPERIAL Plasters (see Folder f-1851). Available in Plain and Type X core, 48" wide, ½" or ⅝" thick, 8 to 12 ft. lengths. The Type X is a fire-rated core which adds fire protection and is listed by U.L., Inc. under Label Service.

The ⅛" to ⅜" IMPERIAL Plaster is applied after joints and interior angles have been reinforced with IMPERIAL glass fiber linoweave tape. USG® #900 Corner Bead is used to reinforce exterior corners.

function and utility

These assemblies combine the fast finishing features of veneer plaster, the installing ease of continuous resilient channels, and the advantages of open-web studs. They are designed for interior partitions and exterior furring wherever conventional plaster or drywall systems are used.

Durability—The high compressive strength (approx. 3,000 psi), abrasion- and crack-resistant features of IMPERIAL Plaster offer the durability needed in high traffic areas, and obtainable with few other materials.

Strength—TRUSSTEEL Studs are formed of No. 7 gauge cold drawn wire, with a tensile strength of 90,000 psi. The resistance moment computed on the section modulus with the high tensile strength produces an exceptionally strong non-load bearing steel stud.

Fire-Resistance Rating of 1 hour is available using single layers of ½" Type X plaster base (see table above).

Sound Control—The system offers sound isolation of 48 STC with the use of Sound Attenuation wool, suitable for party walls (see table above).

Versatility—Adaptable to most dimensions or modules in virtually all types of buildings, these systems meet all normal

design and job conditions. The open web of the truss design studs provides a maximum of free space for encasing pipes, conduits or ducts, horizontally, vertically or diagonally, without impairing the structural integrity of the assembly.

Light Weight—Only 7 psf; appreciably less than masonry partitions of the same thickness.

Economy—Simple, inexpensive components erect quickly at a lower cost than conventional plaster systems. Plaster is rapidly applied; both IMPERIAL basecoat and finish are available in choice of two formulas for machine or hand application.

Performance—TRUSSTEEL Studs have been used since 1933 and now account for the majority of all non-load bearing steel studs used nationally. The continued high level of use indicates their acceptance based on their performance.

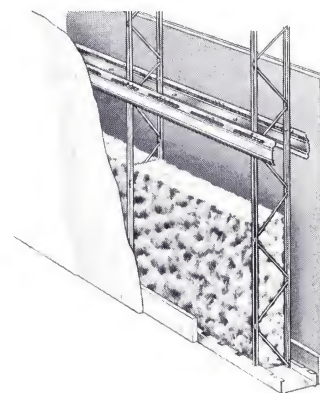
limitations

1. A non-load bearing partition.
2. Max. spacing: studs 24" o.c., resilient channel 16" o.c.
3. Not recommended for use where exposed to abnormal moisture or excessively high humidity.
4. With this system, 1 ⅝" TRUSSTEEL Studs are recommended for wall furring applications only, not for partitions.

finished partition thickness—limiting heights

stud width (in.)	partition width (in.)	stud spacing (in.)	max. partition height (1)		
			(2)	(3)	(4)
2½	4¾	16	10'9"	9'6"	7'6"
		24	9'6"	8'6"	—(5)
3¼	5½	16	13'0"	11'6"	9'3"
		24	11'6"	10'0"	8'0"
4	6¼	16	15'3"	13'6"	10'9"
		24	13'3"	11'9"	9'3"
6	8¼	16	20'9"	17'6"	14'0"
		24	18'0"	15'3"	12'3"

(1) Limiting deflection criteria = L/360. (2) Max. height allowable where no superimposed load is applied perpendicular to partition. (3) Max. height allowable where a 5 psf uniform load is applied perpendicular to partition. (4) Max. height allowable where a 10 psf load is applied perpendicular to partition. (5) Limiting height is less than accepted standard.



exterior wall furring/specifications

It is recommended that all exterior masonry walls be furred. Asphaltic or bituminous bonding agents are not recommended as a plaster base. TRUSSTEEL Studs, IMPERIAL Base and Plaster provide an exterior wall furring system that offers a maximum free space for encasement of pipes, ducts or conduits and a finished, readily decorated interior wall surface.

This construction consists of TRUSSTEEL Studs as vertical members, spaced 24" o.c. and inserted top and bottom into TRUSSTEEL Snap-in Runner Track. RC-1 Channels are screw-attached to the TRUSSTEEL Studs on side to be faced. 1/2" IMPERIAL Base is screw-attached to the RC-1 Channels, then plastered to 1/16" to 3/32" grounds.

TRUSSTEEL stud size	stud spacing	maximum height (1)
1 5/8"	16" 24"	9'-0" 8'-0"
2 1/2"	16" 24"	11'-9" 10'-6"
3 3/4"	16" 24"	14'-3" 12'-6"
4"	16" 24"	17'-0" 14'-9"
6" (2)	16" 24"	23'-6" 23'-3"

(1) Limiting deflection criteria = L/360 at 0 psf. (2) TRUSSTEEL runner track and shoes required.

sound transmission loss—db

test no.	method	band center frequency—Hz																STC
		125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	
TL 69-288	Lab	17	20	24	25	27	31	35	39	44	47	49	45	37	37	43	46	36
TL 69-278	Lab	24	30	36	40	44	49	52	54	55	56	57	54	45	45	50	53	48

specifications

notes to architect

1. Resilient channel spacing may be increased to 24" o.c. if 5/8" IMPERIAL Base and two-coat plaster application are used.

2. Lath and plaster surfaces should be isolated with control joints or other means where: (a) partition abuts a structural element (except floor) or dissimilar wall or ceiling; (b) construction changes within the plane of the partition; (c) partition run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.

3. Penetrations of the lath and plaster diaphragm, such as door frames and borrowed-light openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

4. Metal door and borrowed-light frame material should be at least 16-ga. steel, shop primed, with throats accurately formed to overall thickness of partition. They should be anchored at floor with 14-ga. steel plates welded to trim flanges, with provision for two power-driven anchors or equal per plate. Four jamb anchor inserts should be provided in each jamb, welded to the trim returns.

Grouting and additional reinforcement at the jamb are recommended for all door frames and are required for heavy (over 50 lbs. with hardware) or oversize doors which also require use of door closers and bumpers. Grout should be raked out to allow insertion of lath into frame; lath must not terminate against trim.

5. Where these partitions are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs,

such as at electrical boxes, and at the perimeter of the partition. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. Door and borrowed-light openings are not recommended in sound control partitions.

6. Ceramic Tile—IMPERIAL Plaster Base is not recommended as a base for the adhesive application of ceramic, metal and plastic tile unless the edges are protected from wetting and the entire surface is sealed with adhesive or other material recommended by the tile manufacturer. SHEETROCK* W/R Gypsum Wallboard is recommended for this use.

7. Proper sealing of plaster surfaces before painting is essential.

8. Zinc alloy accessories are recommended where corrosion due to high humidity or saline content of aggregate is possible.

9. See U.S.G. Product Folders in this series: Gypsum Plasters Folder for Plaster Specifications; Plaster Bases & Accessories Folder for General Lathing Specifications; Paint Products Folder for Paint Specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

a. In cold weather, all glazing shall be completed and the building heated to a minimum of 55°F. Before plaster base installation, ventilation should be provided to carry off excess moisture.

b. When low humidity, high temperatures and rapid drying conditions exist during plaster base and plaster application, DURABOND Joint Compound and PERF-A-TAPE Reinforcement shall be used on all joints, internal corners, trim and corner beads and allowed to set and dry thoroughly before plaster application.

Part 2: products

2.1 materials

a. TRUSSTEEL Snap-In Runner Track—widths 1 5/8", 2 1/2", 3 1/4", 4".

b. TRUSSTEEL Runner Track—width 6" (required with 6" studs).

c. TRUSSTEEL Stud Shoes (use with TRUSSTEEL runner track).

d. TRUSSTEEL Studs—widths 1 5/8", 2 1/2", 3 1/4", 4", or 6". (See Limitations, page 1.)

e. IMPERIAL Plaster Base (Plain) (Type X)—1/2" thick, 48" wide, lengths as required.

f. RC-1 SHEETROCK Resilient Channel.

(continued on page 4)

details

partitions

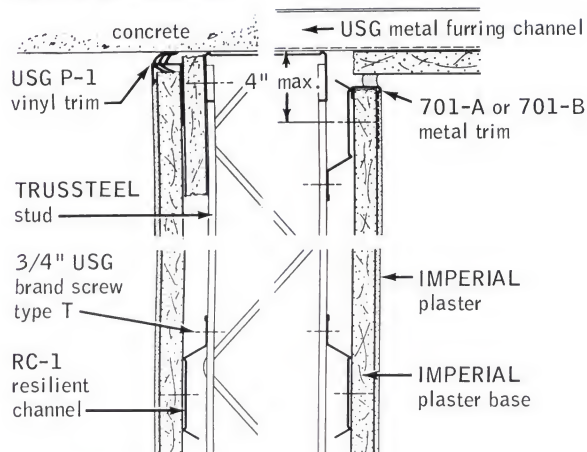
a

TRUSSTEEL Studs and IMPERIAL

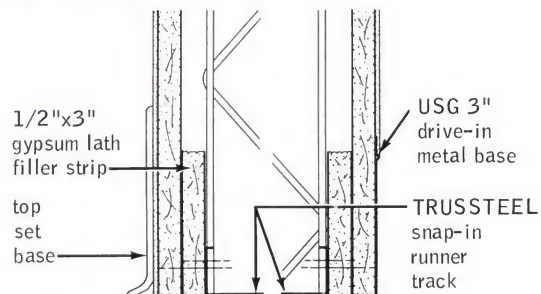
1151

scale: 3" = 1'-0"

ceiling attachment

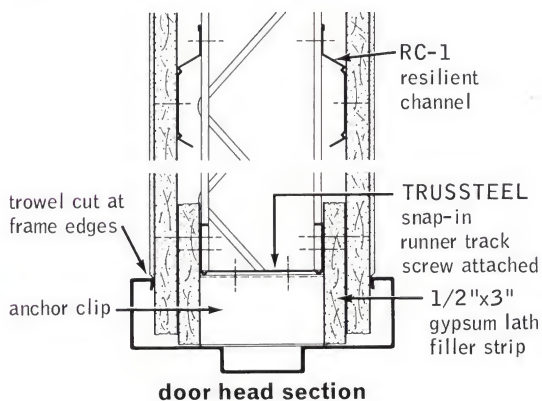
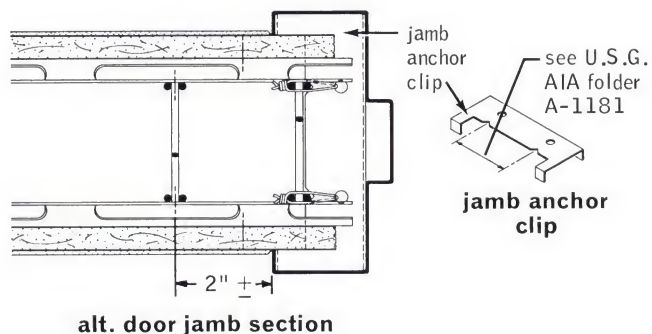
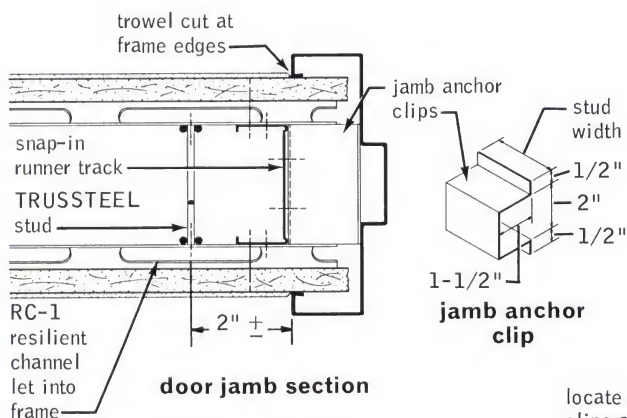
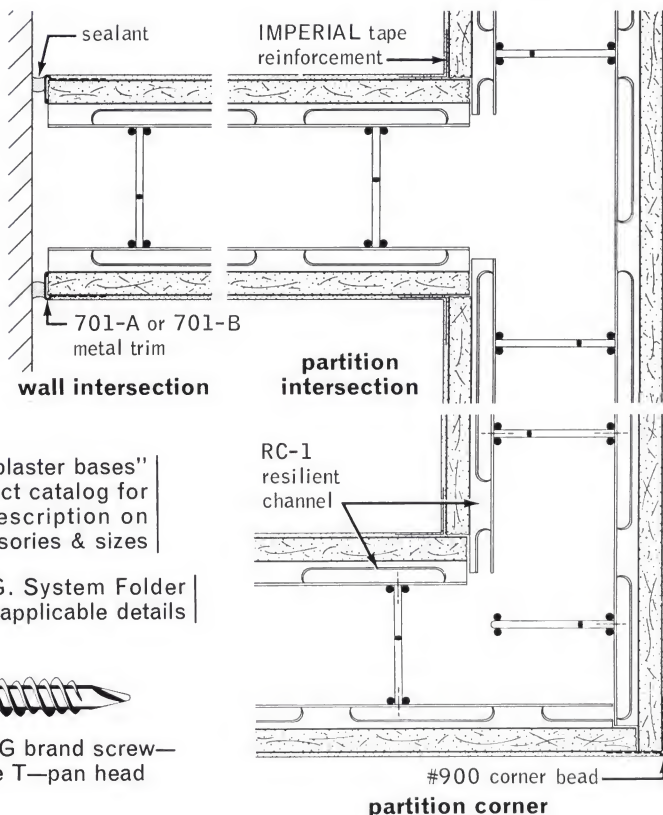


floor attachment



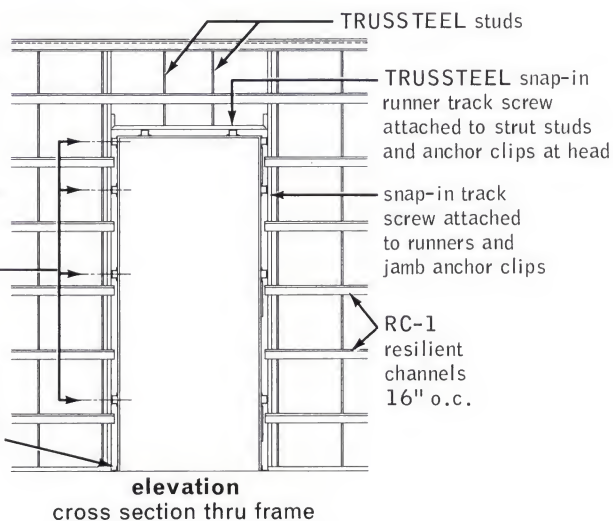
see "plaster bases" product catalog for full description on accessories & sizes

see U.S.G. System Folder a-1181 for applicable details



locate jamb anchor clips above hinge reinforcements and just below top reinforcements—clips on strike side to occur directly opposite of hinge side

floor anchor clips secured with no less than two suitable fasteners



Part 2: products (continued from page 2)

- g. THERMAFIBER Sound Attenuation Blankets 1½" thick, 24" x 48".
- h. Fasteners—USG Brand ¾" Type S and Type S-12 Pan Head Screws; ¾" Type T Pan Head Screws; 1" and 1½" Type S Bugle Head Screws.
- i. IMPERIAL Tape—(Type P) (Type S) for joint reinforcement.
- j. USG Drive-In Metal Base 3".
- k. USG Acoustical Sealant.
- l. PERF-A-TAPE Reinforcement and DURABOND Joint Compound.
- m. Accessories—#900 Corner Bead, USG #093 Control Joint, (701-A) (701-B) USG Metal Trim, P-1 USG Vinyl Trim.

Part 3: execution**3.1 stud system erection**

Install TRUSSTEEL Studs of the size shown on the plans or as herein specified, spaced max. 24" o.c. Accurately align all partitions according to the partition layouts.

Securely attach runner tracks:

- 1. **To concrete slabs**—Using concrete stud nails or power-driven anchors, spaced max. 24" o.c.
- 2. **To ceiling grillage**—Wire tie, using a double strand of 18-ga. tie wire, spaced max. 24" o.c.
- 3. **To plaster or gypsum base**—Toggle bolt or wire tie, spaced max. 24" o.c.

Place studs, cut to nominal ceiling height, vertically into and resting upon floor runner track. Top of studs can be no more than ⅜" from ceiling with Snap-In Track; no more than 3" from ceiling with TRUSSTEEL Runner Track.

Secure studs to Snap-In Track by twisting until studs engage notches in both floor and ceiling tracks; to TRUSSTEEL Runner Track with TRUSSTEEL Stud Shoes, crimped or wire tied with double-strand 18-ga. wire.

Secure studs immediately adjacent to door and borrowed light frames with two wire ties of double-strand 18-ga. wire.

3.2 door frames

Install vertical strut studs, consisting of cut-to-length TRUSSTEEL Snap-In Runner Track, adjacent to TRUSSTEEL Studs at each side of each door opening. Anchor strut studs to floor and ceiling runners with ⅜" type S screws at each flange intersection. Install headers formed from Snap-In Track, miter-cut and bent 90° at each end to abut against strut studs. Anchor headers to strut studs with two ⅜" type S screws at each end. Anchor door frames with ⅜" type S-12 screws driven through header and strut studs into frame anchor clips. For heavy oversize doors, install horizontal reinforcing channels in pairs at each side of door jamb and positioned 8" from head and floor and at mid-height. Securely tie these aligning channels to inside of stud chord at each intersection.

3.3 resilient channel erection

Screw-attach ½" thick x 3" wide continuous filler strip of IMPERIAL Plaster Base to both sides of Snap-In Runner Track

at the floor (also at the ceiling for fire-rated construction). Attach strip with 1" type S screws 24" o.c. Position RC-1 Resilient Channels 16" o.c. vertically and secure to TRUSSTEEL Studs by driving a ¾" type T pan head screw through the RC-1 attachment flange into the space between the two wires forming the chord of the stud. If the RC-1 attachment flange falls over protruding lugs on the stud, place the RC-1 with resilient flange in opposite direction.

3.4 plaster base application

Apply IMPERIAL Plaster Base of maximum practical length, with the long dimension at right angles to the channels and with end joints centered over the channel, staggered and neatly fitted. Fasten plaster base to channels with 1" type S screws spaced 12" o.c. in the field of the base and along abutting edges. Use 1½" type S screws at floor and ceiling where plaster base is supported by filler strips. Drive screws at least ⅜" from ends or edges of base. Be certain base is properly supported around all cut-outs and openings.

3.5 accessory application

When low humidity, high temperatures and rapid drying conditions exist, use DURABOND Joint System on all joints, internal corners, trim and corner beads and allow to set and dry thoroughly before applying finish plaster.

a. Reinforcing Tape—Apply over full length of all plaster base joints; do not overlap at intersection.

Type P Tape—Press firmly along entire length to insure firm wrinkle-free attachment.

Type S Tape—Apply with spring-driven stapler using ⅜" staples. Use two staples at each end of tape and stagger intermediate staples 24" o.c. along length of tape. At wall-ceiling intersections and interior corners, staple tape 24" o.c. along ceiling edge or on one edge only. For fire-rated assemblies, staple tape 8" o.c.

b. Corner Bead—Attach to all vertical and horizontal exterior corners with nails or staples spaced 12" o.c. along both flanges.

c. Casing Bead—Install 701-A Metal Trim, expanded-mesh flange out, over plaster base at door and window openings; attach with nails driven into door or window buck. Install 701-B Metal Trim, expanded-mesh flange out, over plaster base at junction with rough concrete or masonry; attach with staples or with nails driven into framing.

d. Screws—Power-drive and set so screwhead is flush with surface of plaster base without tearing through face paper.

e. Vinyl Trim—Slip P-1 Trim over plaster base with long flange behind base. Install plaster base with trim firmly abutting surface.

f. Control Joint—Provide in the face layer as indicated and fasten with staples not over 12" o.c. on both flanges along entire joint length. Be certain that resilient channel is interrupted at junction of control joint installation.

g. Drive-in Metal Base—Install over plaster base to provide full plaster grounds. Notch all angles to form a neat miter and butt ends evenly in continuous runs. Anchor base securely in place by engaging short flange beneath runner.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (metal products, accessories); TRUSSTEEL (metal studs, accessories); THERMAFIBER (insulating wool); IMPERIAL (plaster and base, joint reinforcement); DURABOND (joint system); SHEETROCK (gypsum wall-board, metal channel).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY and any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Gypsum Tile—3" hol PYROBAR—unplastered wt 11 width 3"	BMS-92 table 24 (f)			78		a-1161
1 hr.	Gypsum Tile—2" solid PYROBAR—unplastered wt 11 width 2"	BMS-92 table 24 (f)			86	For col. fireprfg., short runs & vent shafts only	a-1161
3 hrs.	Gypsum Tile & Plaster—4" hol PYROBAR tile— $\frac{5}{8}$ " 100:3 gypsum sand plaster one side only wt 20 width 4 $\frac{1}{4}$ "	T-118-29&30-OSU (f)	N/A		124		a-1161
3 hrs.	Gypsum Tile & Plaster—3" hol PYROBAR— $\frac{5}{8}$ " 100:3 gypsum sand plaster wt 23 width 4 $\frac{1}{4}$ "	T-26-5-OSU (f) (s)	40		154	Incombustible—good plaster base	a-1161
3 hrs.	Gypsum Tile—3" solid PYROBAR—unplastered wt 16 width 3"	T-26-3-OSU (f)			91	Excellent fire protection for weight & cost	a-1161
3 hrs.	Gypsum Tile & Plaster—3" hol PYROBAR— $\frac{5}{8}$ " 100:3 gypsum sand plaster one side only wt 16 width 3 $\frac{1}{2}$ "	T-1315-OSU (f)			118	Ideal for chase walls, vent & elevator shafts	a-1161
3 hrs. est	Gypsum Tile & Plaster—3" hol PYROBAR—2x2 wd fur 16" o.c. vert—1 $\frac{1}{2}$ " THERMAFIBER sound atten bkts betw fur—R-5 resil clips att to wd fur— $\frac{3}{8}$ " ROCKLATH pl base— $\frac{1}{2}$ " gypsum sand plaster one side & opp side $\frac{5}{8}$ " direct—perimeter caulked wt 22.5 width 6 $\frac{1}{2}$ "	USG-123-FT-G&H (s) Field Test KSO-1090072-f (s)	55	51	202	Excellent sound & fire resistance. No outlets in 123-FT test; two caulked outlets in field test	a-1161
3 hrs. est	Gypsum Tile & Plaster—4" hol PYROBAR—R-5 resil clips— $\frac{3}{8}$ " ROCKLATH pl base— $\frac{1}{2}$ " gypsum sand plaster one side & opp side $\frac{5}{8}$ " direct—perimeter caulked wt 27 width 6"	USG-110-FT-G&H (s) Field Test KSO-1090072-e (s)	50	47	178	Good attenuation. No outlets in 110-FT; two caulked outlets in field test	a-1161
3 hrs. est	Gypsum Tile & Plaster—3" hol PYROBAR—R-5 resil clips— $\frac{3}{8}$ " ROCKLATH pl base— $\frac{1}{2}$ " gypsum sand plaster one side & opp side $\frac{5}{8}$ " direct wt 24 width 5"	TL-60-127 (s)	52		178	Excellent fire resistance—reduces sound leaks & flanking paths	a-1161
3 hrs. est	Gypsum Tile & Plaster—3" hol PYROBAR—#500 resil clips— $\frac{3}{4}$ " cr chan & 3.4# dm met lath— $\frac{3}{4}$ " gypsum sand plaster one side & opp side $\frac{5}{8}$ " direct wt 25 width 5 $\frac{1}{4}$ "	NBS-313 (s)	46		195		a-1161
4 hrs.	Gypsum Tile & Plaster—4" hol PYROBAR tile— $\frac{5}{8}$ " 100:3 gypsum sand plaster wt 26 width 5 $\frac{1}{4}$ "	T-118-35&36-OSU (f) NBS-305 F44 (s)	42		159	Excellent fire protection—good plaster base	a-1161
4 hrs.	Gypsum Tile & Plaster—6" hol PYROBAR tile— $\frac{5}{8}$ " 100:3 gypsum sand plaster one side only wt 28 width 6 $\frac{1}{4}$ "	T-26-1-OSU (f)	N/A		139	Excellent fire protection, low dead load	a-1161

wall furring application

—	R-5 Resilient Clips 16" o.c., Insulating ROCKLATH and BRIDJOINT* Clips, $\frac{1}{2}$ " sanded basecoat plaster, lime putty finish	—	—	—	141	Clip reduces transfer of structural stresses to surface membrane	a-1161
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description

In these fire-resistant assemblies, gypsum plaster is either directly applied to PYROBAR Gypsum Partition Tile or applied to ROCKLATH* Plaster Base or USG® Metal Lath which are resiliently furred from PYROBAR Tile or other masonry surface with special USG Resilient Clips. These clips improve sound transmission loss and make this partition highly suitable for party walls. The clips also greatly reduce the possibility of movement, vibration and thermal shock being transmitted from the masonry base to the plaster surface. The resilient clips may be attached to concrete block, clay or brick masonry to provide a resiliently floated, easily decorated lath and plaster surface for these types of masonry.

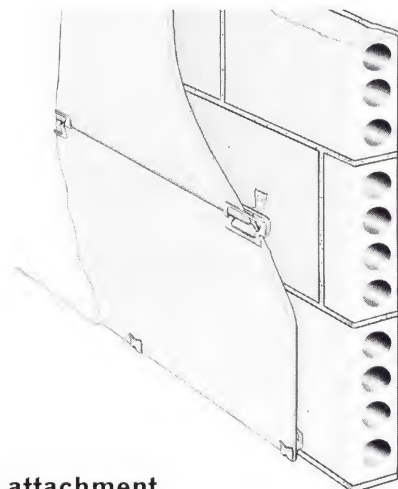
In the resilient attachment of ROCKLATH over masonry, the ROCKLATH is horizontally applied with end joints staggered and secured by USG R-5 Resilient Clips. These clips are spaced not more than 16" o.c. horizontally and vertically, furring the ROCKLATH $\frac{1}{2}$ " from the masonry.

With vertical 2x2 wood furring strips 16" o.c. nailed to 3" hollow PYROBAR Tile, R-5 Resilient Clips nailed to strips and 1 $\frac{1}{2}$ " THERMAFIBER Sound Attenuation Blankets between strips, an excellent sound insulative and fire-resistive party wall is obtained (see table above).

Metal lath may be resiliently furred from masonry surfaces with USG #500 Resilient Clips spaced 16" on center. $\frac{3}{4}$ " channel spaced 16" o.c. is wire tied to the clips and metal lath is tied to the channels.

Pre-cast into a hollow core unit 12"x30", PYROBAR tile is easily laid-up with gypsum mortar to form a lightweight, highly fire-resistant non-load bearing masonry wall. Indented surfaces and kiln-drying make PYROBAR an ideal plaster base that forms a strong natural bond with gypsum plaster. It is available in three thicknesses, and may be plastered on one side, with a resilient lath and plaster facing on the other.

(continued on page 6)



resilient attachment

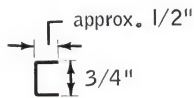
components/details

scale: 3" = 1'-0"

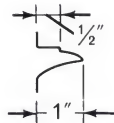


PYROBAR partition tile

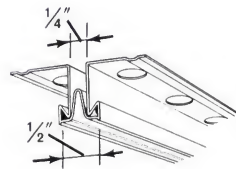
see "plaster bases" product catalog for full description on accessories & sizes



USG cold rolled channel



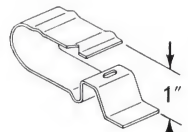
USG 7-A curved point base screed



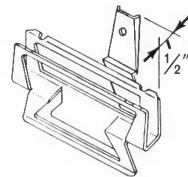
USG control joint



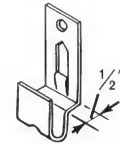
BRIDJOINT clip B-1



resilient clip No. 500



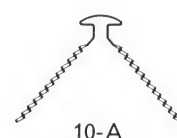
resilient clip R-5



R-SF resilient starter-finisher



1-A expanded flange corner bead

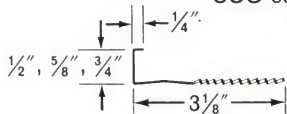


10-A bull nose expanded flange corner bead

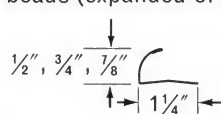


USG 4-R expanded corner bead

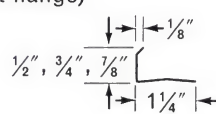
USG casing beads (expanded or short flange)



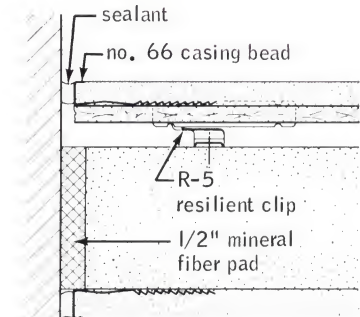
#66 square edge



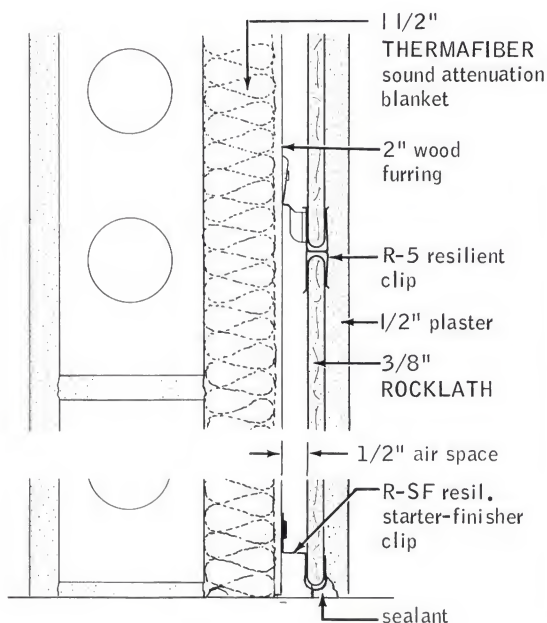
#4 or #138 quarter round



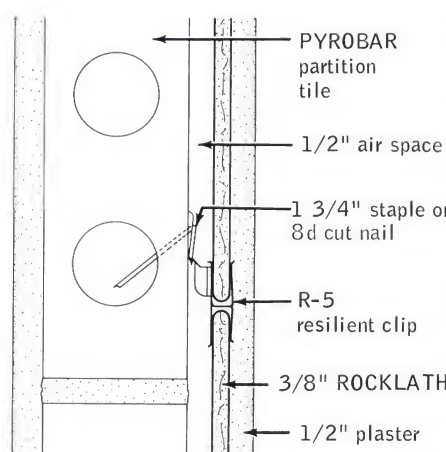
#60 semi-square



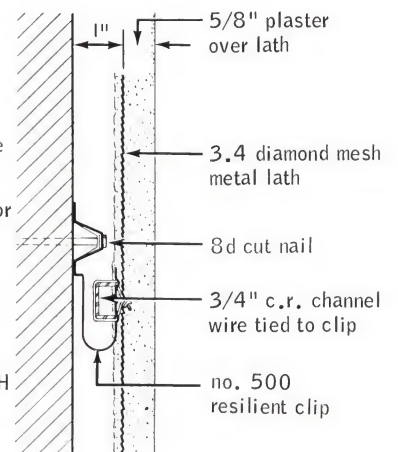
partition wall intersection



cross section wall elevation
ROCKLATH plaster base—sound isolation

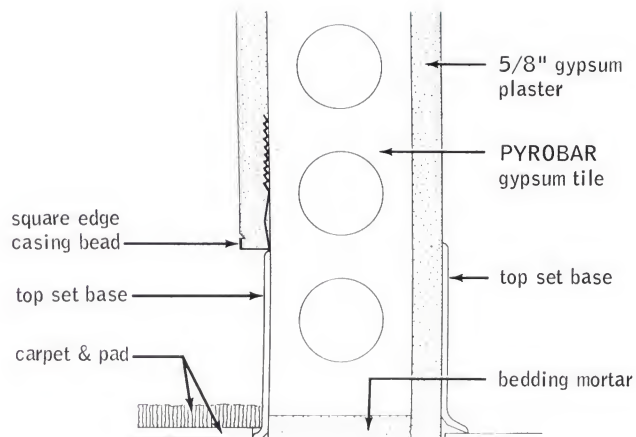


cross section wall elev.
resilient ROCKLATH plaster base

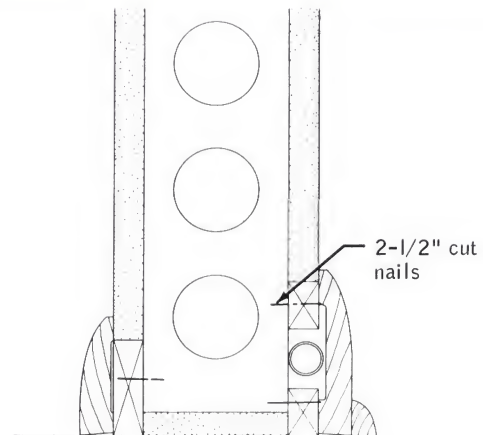


wall-plan view
resilient metal lath

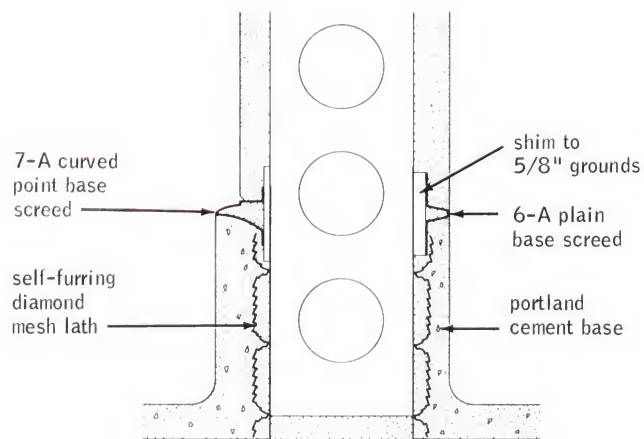
details



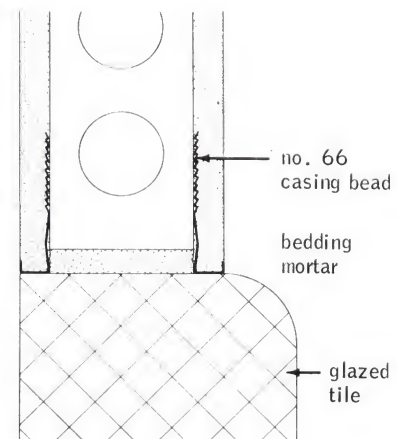
top set



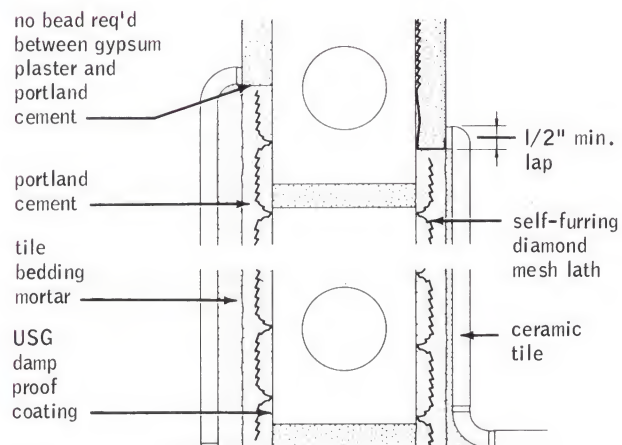
wood



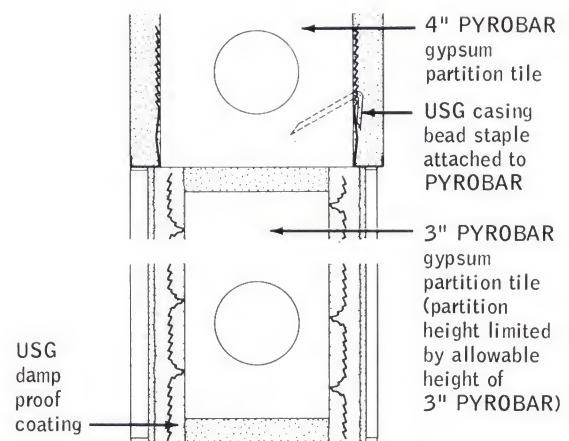
cement or terrazzo



structural glazed tile



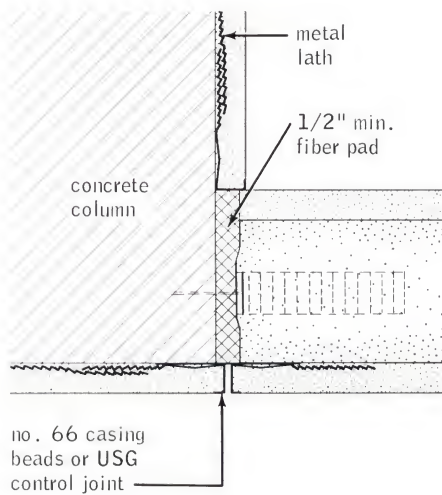
ceramic tile



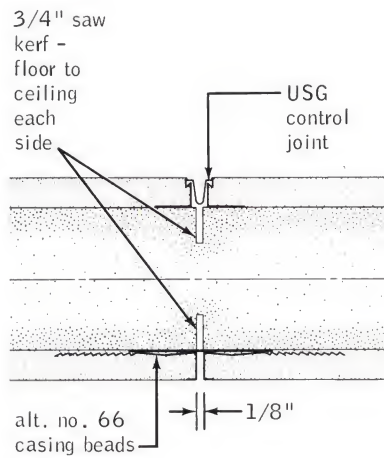
ceramic tile wainscot

details

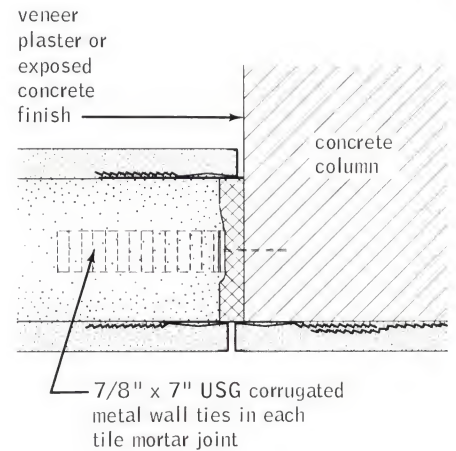
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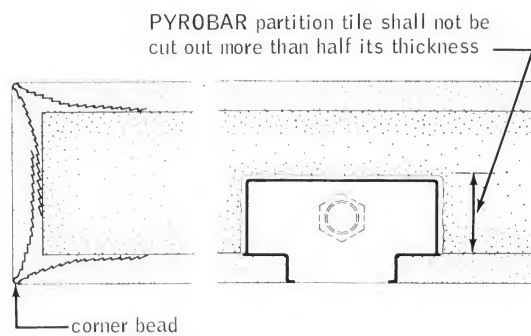
**partition terminal
at flush concrete column**



**partition
control joint**

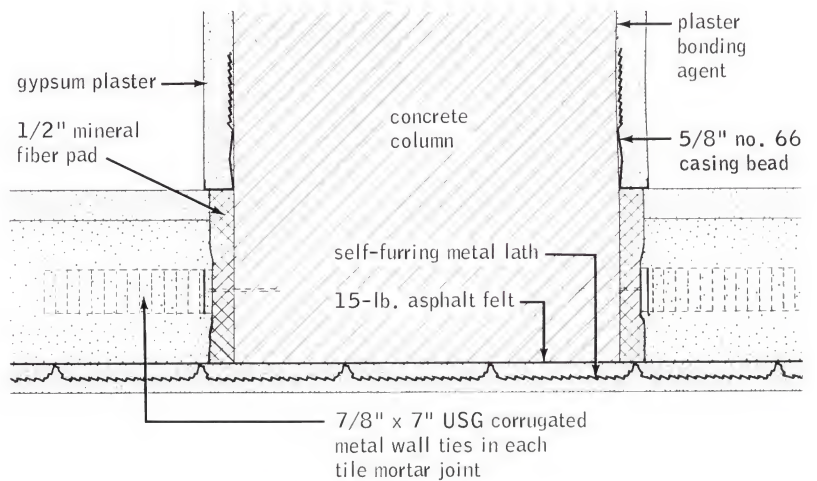


**alt. partition terminal
at flush concrete column**

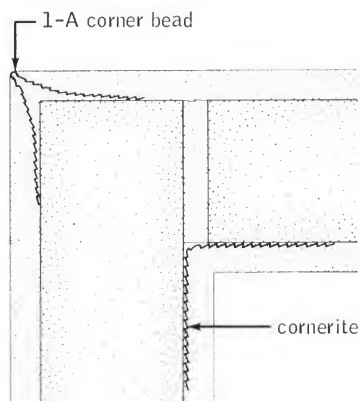


partition terminal

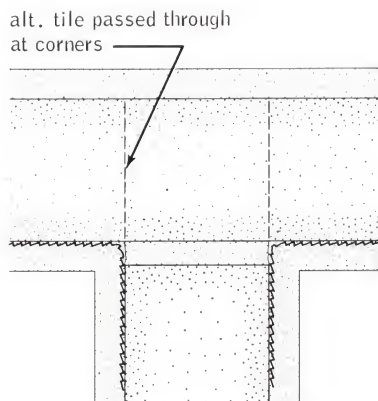
outlet box



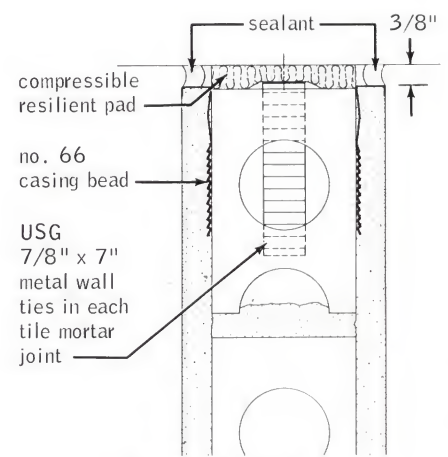
flush concrete column detail



corner

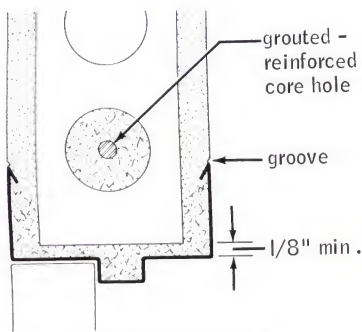


partition intersection

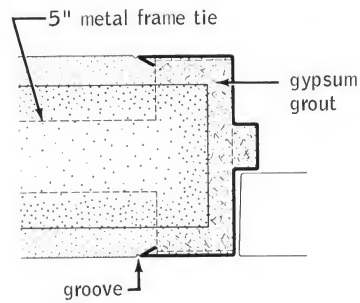


**perimeter relief
ceiling intersection**

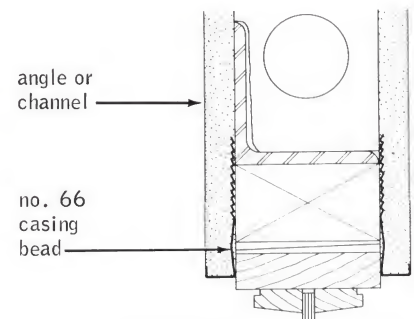
details



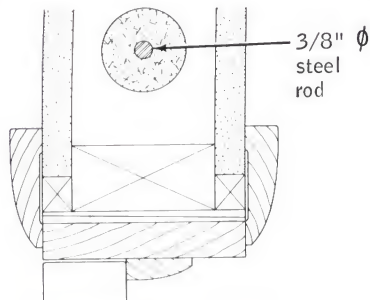
metal door head



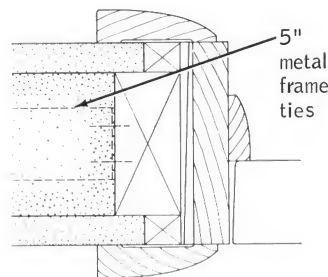
metal door jamb



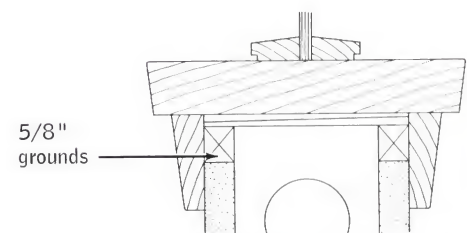
head-borrow light frame



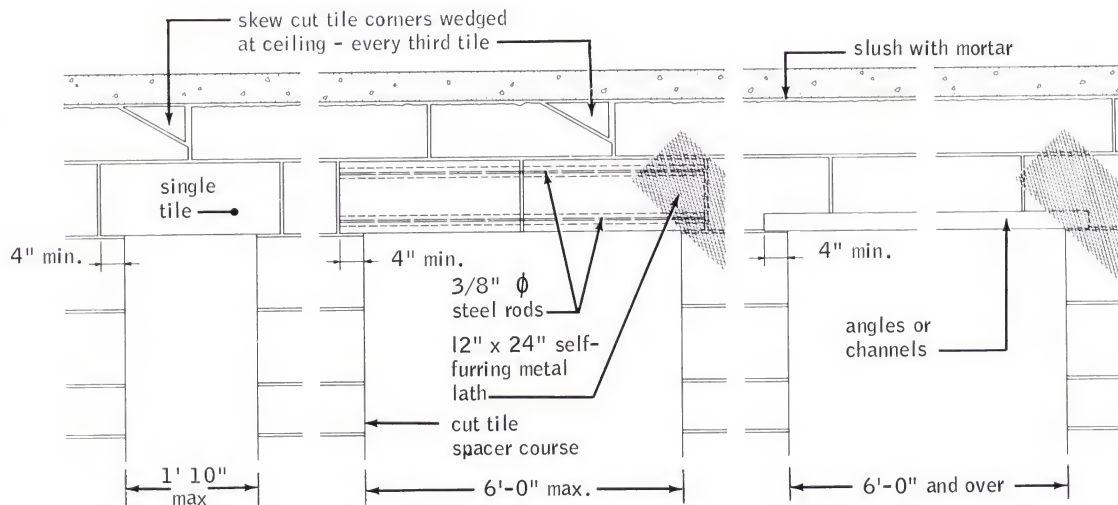
wood door head



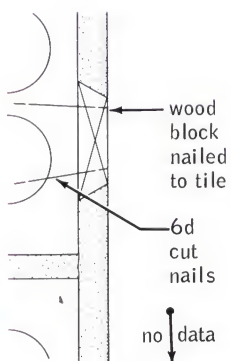
wood door jamb



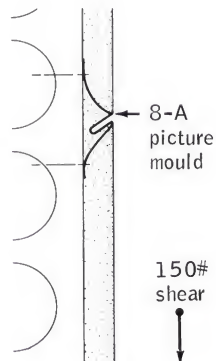
sill-borrow light frame



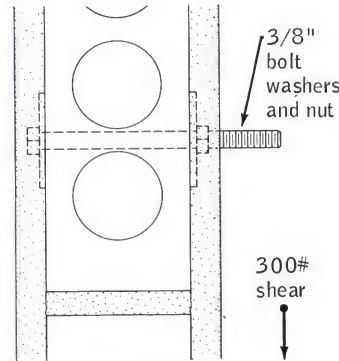
lintel construction



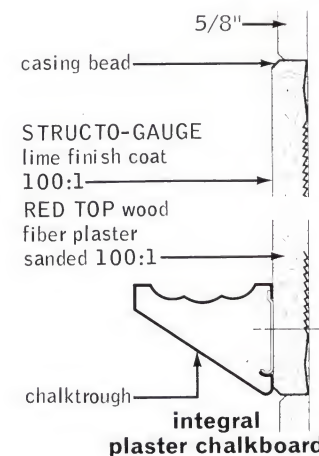
light fixture attachment

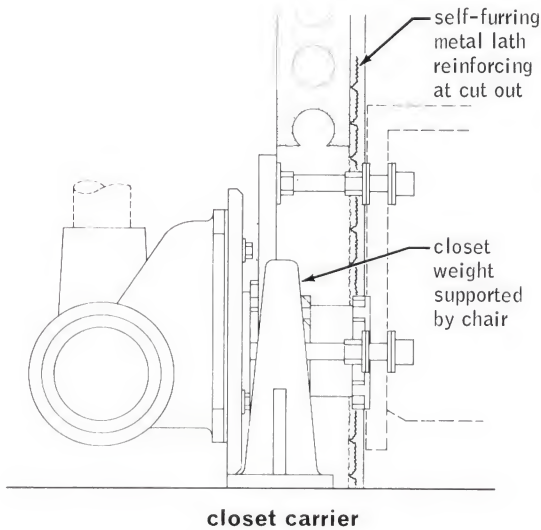


light fixture attachment



heavy fixture attachment

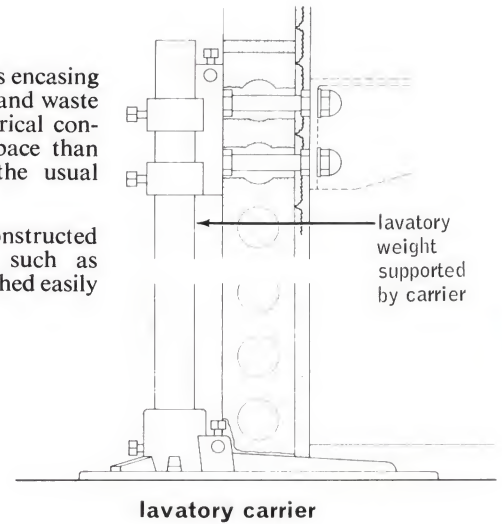




core walls

Core walls, as vertical shafts encasing the usual plumbing supply and waste lines, vent ducts, and electrical conduits, require more free space than can be provided within the usual partition assembly.

Core walls are readily constructed with PYROBAR. Fixtures, such as sinks, shelves, etc., are attached easily (see details).



description (continued from page 1)

available in three thicknesses, and may be plastered on one side, with a resilient lath and plaster facing on the other.

For application of gypsum wallboard to PYROBAR tile partitions, see Gypsum Wallboard & Accessories Product Folder in this series.

function and utility

Fireproof—PYROBAR Partition Tile provides the greatest fire protection per inch thickness of any commercial partition assembly (see table page 1).

Lightweight—Reduces dead load. PYROBAR Partition Tile is 30% to 50% lighter than commonly used masonry units.

Sound Isolation—Very good sound isolation—up to 55 STC—at a low cost (see table page 1).

Economical—Ease of maintenance and tenant renovations make PYROBAR a leading office building partition material.

limitations

1. Non-load bearing partitions.
2. Portland cement and lime mortars do not bond satisfactorily to PYROBAR Partition Tile. Self-furring metal lath attached to PYROBAR is required to support a portland cement plaster (see Specifications).
3. PYROBAR, like other masonry plaster bases, is subject to volume change due to fluctuations in temperature and

humidity. Control joints should be provided to relieve these stresses (see Specifications).

4. PYROBAR is not recommended for a masonry back-up of exterior walls or less than ceiling-height partitions.

5. PYROBAR must be protected by a continuous asphaltic coating prior to any contact of wet flooring or base material with the face of the tile.

technical data

PYROBAR unit—description	thickness	wt.—psf.	limiting height
3" Solid, Unplastered	3"	16 lbs.	13'
3" Hollow, Unplastered	3"	11 lbs.	13'
3" Hollow, Plaster 1 side	3½"	16 lbs.	13'
3" Hollow, Plaster 2 sides	4¼"	23 lbs.	13'
4" Hollow, Plaster 1 side	4½"	20 lbs.	17'
4" Hollow, Plaster 2 sides	5¼"	26 lbs.	17'
6" Hollow, Plaster 2 sides	7¼"	33 lbs.	30'
3" Hollow, Plaster 1 side, M/L-Pl., Res. Clip other side	5¼"	25 lbs.	13'
4" Hollow, Plaster 1 side, M/L-Pl., Res. Clip other side	6¼"	30 lbs.	17'
3" Hollow, Plaster 1 side, R/L-Pl., Res. Clip other side	5"	23 lbs.	13'
4" Hollow, Plaster 1 side, R/L-Pl., Res. Clip other side	6"	27 lbs.	17'

sound transmission loss—db

test no.	method	band center frequency—Hz																				STC	
		125	160	175	200	250	315	350	400	500	630	700	800	1000	1250	1400	1600	2000	2500	2800	3150		4000
TL-60-127	Lab	33	—	37	—	38	—	46	—	48	—	51	—	51	—	55	—	55	—	60	—	64	50
KSO-1090072-e	Field	25	30	—	33	37	37	—	44	46	49	—	53	53	53	—	53	56	59	—	61	63	47
USG-110-FT-G & H	Lab	28	—	34	—	40	—	44	—	47	—	55	—	58	—	59	—	61	—	63	—	61	50
USG-123-FT-G & H	Lab	37	—	51	—	49	—	49	—	54	—	54	—	58	—	60	—	60	—	63	—	62	55
KSO-1090072-f	Field	32	36	—	39	46	44	—	46	49	50	—	51	53	52	—	54	58	62	—	62	66	51

specifications

notes to architect

1. Metal door and borrowed-light frame material should be at least 16-ga. steel, shop primed, with throats accurately formed to overall thickness of partition. They should be anchored at floor with 14-ga. steel plates welded to trim flanges, with provision for two power-driven anchors or equal per plate.

At least three 5" metal frame ties should be provided on each door frame jamb and two ties on each borrowed-light jamb to anchor the frame in the masonry joints (see details, page 5).

Grouting by slushing mortar between door frame and tile is recommended for all frames and is required for heavy (over 50 lbs. with hardware) or oversize doors which also require use of door closers and bumpers.

2. Lath and plaster surfaces should be isolated with control joints or other means where: (a) partition abuts a structural element (except floor) or dissimilar wall or ceiling; (b) construction changes within the plane of the partition; (c) partition run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.

For column isolation, apply 15 lb. asphalt felt across face of structural members to prevent bonding of plaster to column or beam and then use 3.4 lb. self-furring diamond mesh lath across asphalt felt, securely stapled to PYROBAR tile (see detail, page 4).

3. Penetrations of the lath and plaster diaphragm, such as door frames and borrowed-light openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

4. Where a plaster surface is flush with metal, metal bucks, metal windows, or metal base, the plaster should be grooved between the two materials.

5. **Fixture Attachment**—Lightweight fixtures (shelves, cabinets chalkboards, etc.) should be attached to a $\frac{3}{8}$ " wood nailer strip or USG 8-A Picture Mould which has been secured to the PYROBAR Partition Tile. Medium weight fixtures may be secured with $\frac{3}{8}$ " steel bolts through the tile, using 2" steel washers on both sides of tile. Heavy fixtures should be attached to self-supporting hangers (see details, page 5).

6. **Ceramic Tile**—Where portland cement plaster is used as a bedding coat for ceramic tile facing or other purposes, galvanized self-furring metal lath should be applied first to face of PYROBAR. A USG No. 66 Casing Bead ($\frac{5}{8}$ " grounds) or other suitable plaster stop should be used between the portland cement plaster and gypsum plaster (see detail, page 3).

7. Where cement or terrazzo base is used, metal lath should be secured to first course of PYROBAR and SUPER-TITE* Dampproofing Coating applied to tile from rough floor up to height of wet terrazzo (concrete) base. Care should be taken to obtain thorough application at joint of PYROBAR tile with rough floor (see detail, page 3).

8. Where these partitions are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs, such as at electrical boxes, and at the perimeter of the partition. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. Door and borrowed-light openings are not recommended in sound control partitions.

9. When used as a vertical elevator shaft enclosure, the PYROBAR assembly should be laterally restrained at the top with masonry anchors, Cornerite, or continuous angles.

10. Zinc alloy accessories are recommended where corrosion due to high humidity or saline content of aggregate is possible.

11. See U.S.G. product folders in this series: Gypsum Plasters Folder for Plaster Specifications; Plaster Bases & Accessories Folder for General Lathing Specifications; Paint Product Folder for Paint Specifications.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

In cold weather, all glazing shall be completed and the building heated to a minimum of 55°F. Before lathing, ventilation shall be provided to carry off excess moisture.

Part 2: products

2.1 materials

- a. PYROBAR Gypsum Partition Tile shall be (3") (4") (6").
- b. RED TOP* Partition Tile Cement.
- c. Clean, sharp sand, complying with ASTM C35 (not available from U.S.G.).
- d. USG Cornerite (2" x 2") (3" x 3").
- e. USG Striplath.
- f. USG 3.4 lb. Junior Diamond Mesh (Galvanized Self-Furring) Metal Lath, 27" x 96".
- g. USG Corner Bead (specify type from page 2).
- h. USG Casing Bead (specify type from page 2).
- i. USG Control Joint.
- j. USG $\frac{3}{4}$ " Cold Rolled Channels.
- k. USG Resilient Clip (R-5) (No. 500).
- l. BRIDJOINT* Clip B-1.
- m. ROCKLATH Plaster Base shall be ($\frac{3}{8}$ "x16"x48") ($\frac{3}{8}$ "x16"x96") Regular or Perforated.
- n. 18 ga. Tie Wire.
- o. THERMAFIBER Sound Attenuation Blankets 1½"x15"x48".
- p. 2x2 Wood Furring (not available from U.S.G.).
- q. R-SF Resilient Starter-Finisher Clip.
- r. USG Acoustical Sealant.

2.2 mixes

All mortar shall be mixed in proportions of 1 part Partition Tile Cement to 3 parts sand, by weight. Mortar shall not be retempered.

Part 3: execution

3.1 gypsum partition tile installation

Lay tile according to the partition layout after the door frames, rough plumbing and wiring are in place. Place tile with core holes horizontal in uniformly level courses on $\frac{1}{2}$ " thick mortar beds. Stagger vertical joints and cut all joints flush. Wedge partition tightly at ceiling with skew cut tile corners every third tile, and fill head joints with $\frac{1}{2}$ " mortar. Keep broken

tile to a minimum; fill chinks and crevices with mortar. Do not chase or cut out more than one-half tile thickness. Cover chases with metal lath secured in place.

Anchor partitions to intersecting masonry walls with corrugated wall ties spaced 12½" o.c. vertically or 16d or 20d cut nails embedded in mortar joints. Anchor door frames to partition with at least three metal frame ties in each jamb (approx. 12" from top and bottom and at center) laid in mortar joints. Slush mortar into space between tile and door frame jamb as tile is laid. Form lintels as shown in the plans and set tile in at least ⅛" thick bed of mortar above door frame head. Anchor borrowed light frames the same as door frames, except only two metal frame ties are required on jambs (approximately at third points), of openings less than 80" high.

3.2 plaster base attachment

3.2.1 metal lath with resilient clips

Securely attach USG #500 Resilient Furring Clip to face of PYROBAR Tile partition using an angular driven 1¼" staple or a 8d cut nail. Space clips not to exceed 16" o.c. both ways. Install ¾" cold rolled channels vertically with legs engaging grooves on inner face of clip. Saddle-tie channel to clips with a double strand of 18-ga. tie wire.

Apply metal lath with long dimension across supports and with end joints staggered in adjacent rows. Lap ends at least 1" and sides at least ½". At all interior angles form metal lath into corners and carry out onto abutting surface. Secure lath to all supports at intervals not exceeding 6". Securely tie end laps between supports with 18-ga. tie wire.

3.2.2 self-furring metal lath to interior masonry

Install a vapor barrier over masonry walls prior to metal lath attachment. Apply galvanized self-furring metal lath with sides and ends lapped at least 1", and securely attach to walls with fasteners spaced 12" o.c. horizontally and 9" o.c. vertically. Use 1¼" fence staples for PYROBAR Tile and ⅜" washers with 1" cut nails or ¾" power-driven fasteners for the masonry walls. Attach fasteners in mortar joints of brick, clay tile and cement block or in field of lightweight block.

3.2.3 ROCKLATH with resilient clips

Securely attach USG R-5 Resilient Clips to PYROBAR Tile with

an angular-driven fence staple with one leg penetrating PYROBAR and the other bridging clip attachment flange. Space clips no more than 16" o.c. and at each lath end joint.

Apply ROCKLATH Plaster Base face out with long dimension horizontal and with ends butted together. Cut lath accurately and fit neatly around all electrical outlets, openings, etc. On succeeding courses, stagger end joints. At floor and ceiling, shim out ROCKLATH using a narrow piece of ROCKLATH and nail in place.

3.2.4 ROCKLATH with resilient clips on furring strips

Install 2x2 wood furring strips vertically spaced 16" o.c. and fasten with nails having at least 1½" penetration into tile. Drive nails into solid part of tile and not core holes. Strips may be angle-nailed on alternate sides if necessary. Place 1½" THERMAFIBER Sound Attenuation Blankets between strips and attach with staples.

Apply ROCKLATH Plaster Base face out with end joints staggered in adjacent courses and with ¼" clearance around partition perimeter. Align ends of lath and secure with R-5 Resilient Clips spaced 16" o.c. and nailed to furring strips with 1½" lathing nail. Attach top and bottom lath courses at floor and ceiling line with R-SF Clips spaced 16" o.c. and nailed to furring strips.

3.3 accessory application

a. Cornerite—Install in all interior plaster angles. Nail or staple at the edges.

b. Metal Corner Bead—Provide on all external plaster corners in single lengths wherever possible. Fasten securely with nails or galvanized staples, spaced 8" o.c. max.; stagger in two wings.

c. Casing Bead—Install where indicated to provide full plaster grounds. Cut and miter ends accurately. Nail or staple in place.

d. Reinforcing—Install a strip of self-furring diamond mesh lath over joints between dissimilar plaster bases. At all openings, reinforce corners by attaching a 12" x 24" piece of self-furring diamond mesh lath diagonally across corners. Place lath flush over conduit and pipe chases and nail in place.

e. Control Joint—Provide as detailed and where indicated. Nail, wire-tie or staple in place.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (metal products); ROCKLATH (plaster base); PYROBAR (gypsum partition tile); RED TOP (partition tile cement); SUPER-TITE (asphalt coating); STRUCTO-GAUGE (plaster).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Stl Stud—Metal Lath & Plaster—3¼" TRUSSTEEL studs 16" o.c.—3.4# dm met lath—¾" 100:2-100:2 gypsum sand plaster wt 16 width 4¼"	BMS-92 table 31 (f) NBS-329 F44 (s)	41		150	Standard steel stud partition	a-1171
1 hr.	Stl Stud—Metal Lath & Plaster—3¼" TRUSSTEEL studs 16" o.c.—3.4# dm met lath direct att with SUPER-TITE clips—¾" 100:2-100:2 gypsum sand plaster wt 16 width 4¼"	T-4228-OSU (f)	N/A		145	Erection speeded by clip attachment	a-1171
1 hr. est	Stl Stud—Resil Metal Lath & Plaster—2½" TRUSSTEEL studs 16" o.c.—one side #400 resil clips & pencil rods—opp side direct with SUPER-TITE clips—3.4# dm met lath—¾" 100:2-100:3 gypsum sand plaster—perimeter caulked wt 16 width 4¼"	TL-68-32 (s)		47	160	Erection speeded by clip attachment	a-1171
2 hrs.	Stl Stud—Metal Lath & Plaster—2½" TRUSSTEEL studs 16" o.c.—3.4# dm met lath—¾" 100:1 gypsum wood fiber sand plaster wt 17 width 4¼"	UL-R4024-9-10 (f)	N/A		210	Excellent fire performance; highly abrasion resistant	a-1171
4 hrs.	Stl Stud—Metal Lath & Plaster—4" TRUSSTEEL studs 16" o.c.—one side 3.4# poly-back dm met lath direct att & ¾" cem lime pl—¾" STRUCTO-LITE (Type R) plaster in stud cavity—opp side 3.4# dm met lath & ¾" 100:2-100:3 gypsum sand plaster wt 30 width 5½"	UL Des 13-4 hr (f)	N/A		500	Suitable for smoke tower construction	a-1171

For wall furring application, see page 9.

description

These partition assemblies consist of USG Metal Lath either directly or resiliently attached to open-web TRUSSTEEL Stud. In direct attachment the lath is fastened directly to the studs with SUPER-TITE® Clips and/or tie wire. The SUPER-TITE Clip offers fast, secure lath attachment and permits panelization of components when diamond mesh lath is used. The lath is resiliently attached by means of ¼" Pencil Rods and USG Resilient Clips; thus the lath and plaster diaphragm is not rigidly coupled to the studs. The excellent sound-isolative efficiency of this system results from this resilient mounting of the plaster membrane and the column of air formed within the TRUSSTEEL Studs (see table above).

TRUSSTEEL Studs utilize a truss design for superior strength, are fabricated in five stud widths (see table, page 10) and are factory cut to job lengths. Studs are attached to the floor and ceiling by means of runner tracks and TRUSSTEEL stud shoes.

Metal Lath for these assemblies is available in three types (see Specifications, page 10). 3.4 lb. Diamond Mesh Metal Lath is used as the plaster base for resilient attachment. Poly-backed Diamond Mesh Lath is ideal for machine application of plaster. The excellent mechanical keying properties and equal distribution of reinforcing provided by metal lath give assemblies using it high fire resistance and sound transmission loss ratings relative to their weight (see table above).

function and utility

The open web of the truss design provides a maximum of free space for encasing pipes, conduits or ducts, horizontally, vertically or diagonally, without impairing the structural integrity of the assembly.

Fire Protection—Incombustible components provide systems with 1-hour and 2-hour fire-resistance ratings (see table above).

Strength—TRUSSTEEL Studs are formed of No. 7 gauge cold drawn wire, with a tensile strength of 90,000 psi. The resistance moment computed on the section modulus with the high

tensile strength produces an exceptionally strong non-load bearing steel stud.

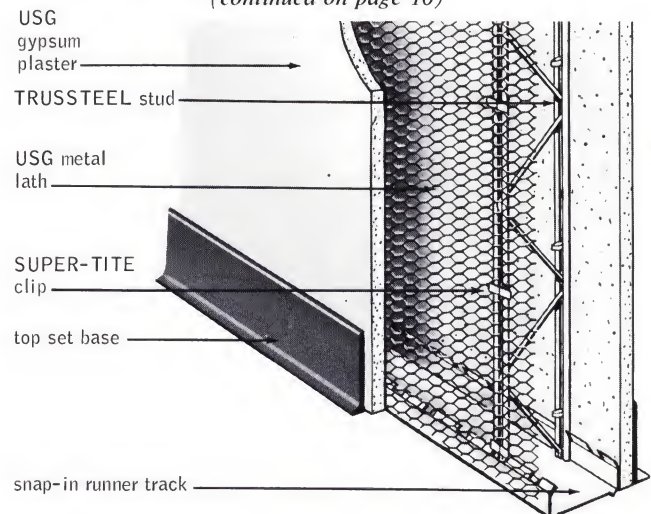
Economical—The structural integrity, the strength, the sound isolation, the open core wall and fire protection are provided by TRUSSTEEL Stud partitions at a lower cost than by other incombustible assemblies.

Performance—TRUSSTEEL Studs have been used since 1933 and now account for the majority of all non-load bearing steel studs used nationally. The continued high level of use indicates their acceptance based on their performance.

limitations

1. A non-load bearing partition.
2. Stud spacing limited to 16" o.c. for 3.4 lb. Diamond Mesh Lath and 19" o.c. for 3.4 lb. ⅛" Z-Riblath (see table, page 10, for limiting heights).

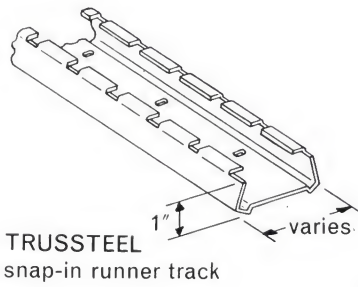
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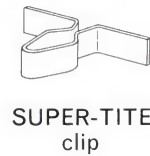
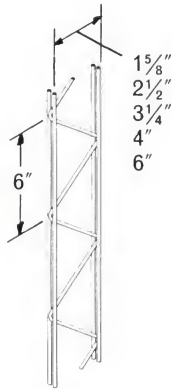
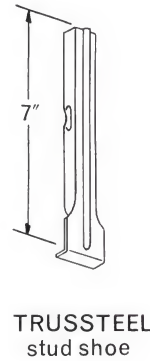
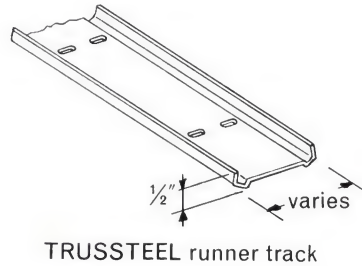
sound transmission loss—db

test no.	method	band center frequency—Hz																				STC	
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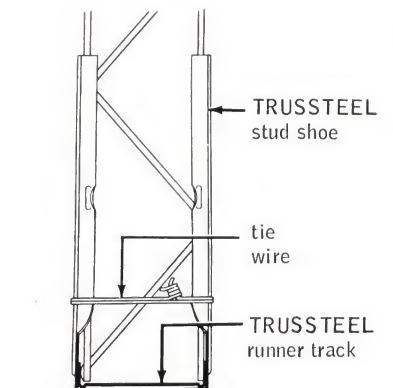
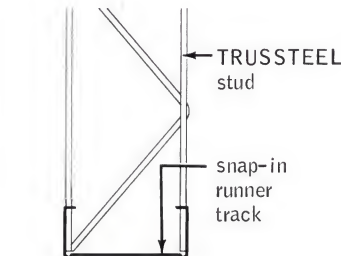
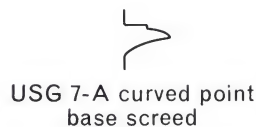
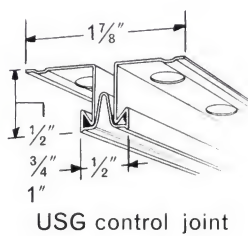
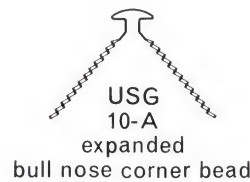
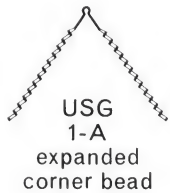
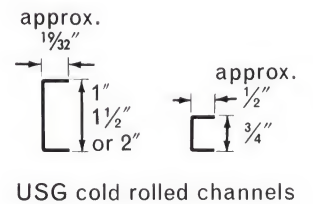
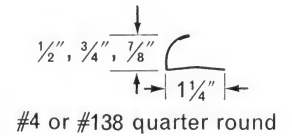
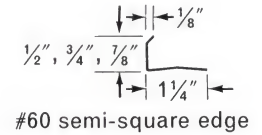
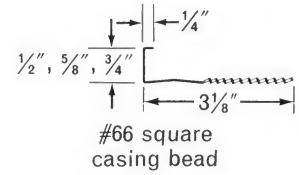
components



see "plaster bases" product catalog for
full description on accessories & sizes



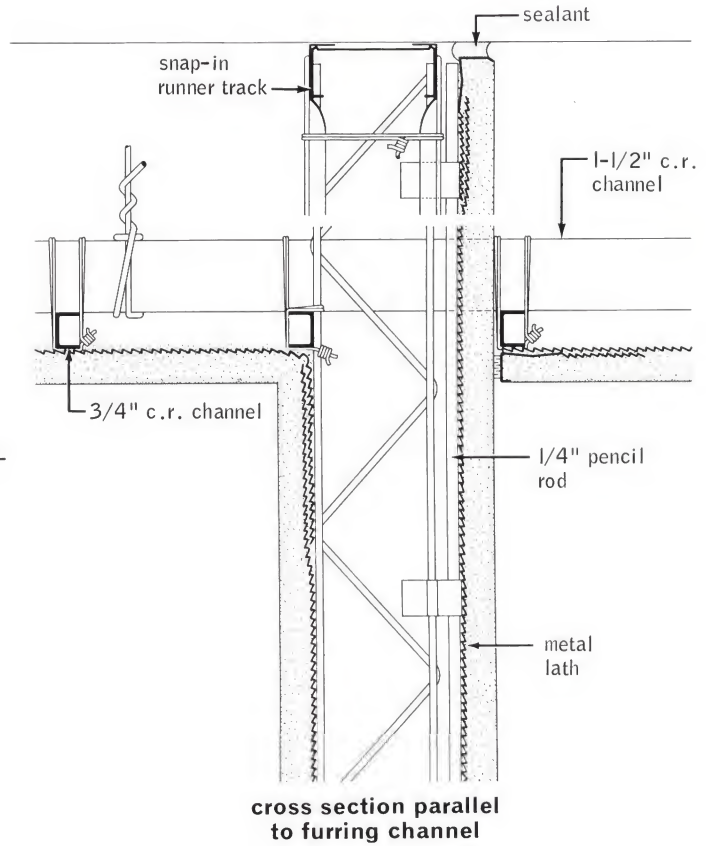
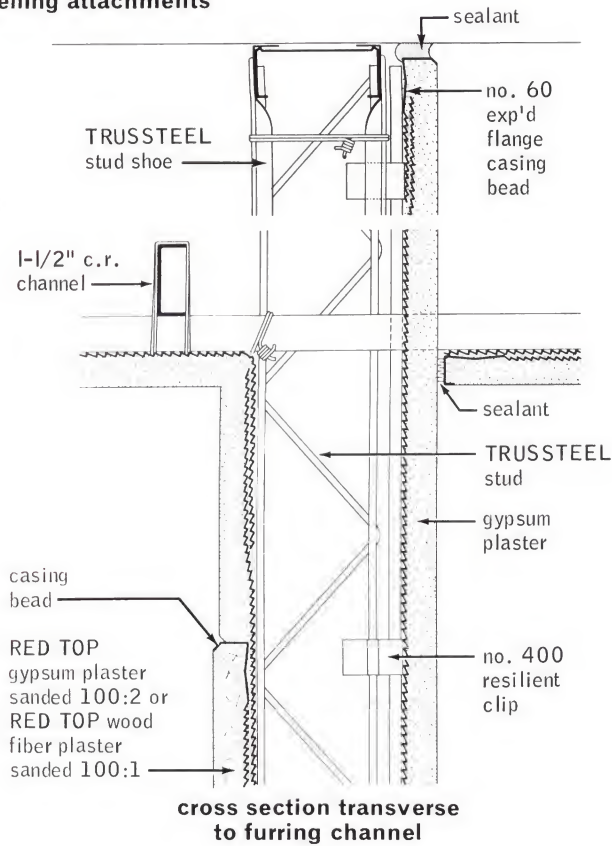
USG casing beads
(expanded or short flange)



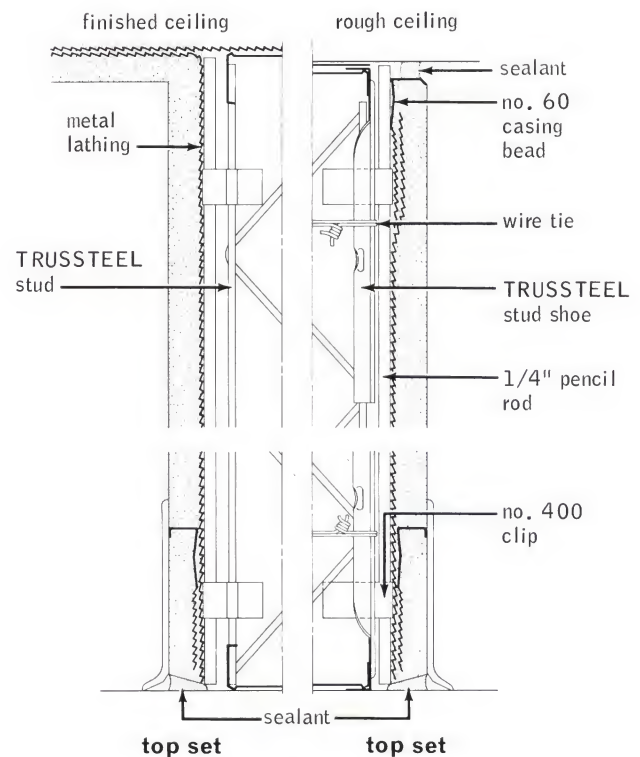
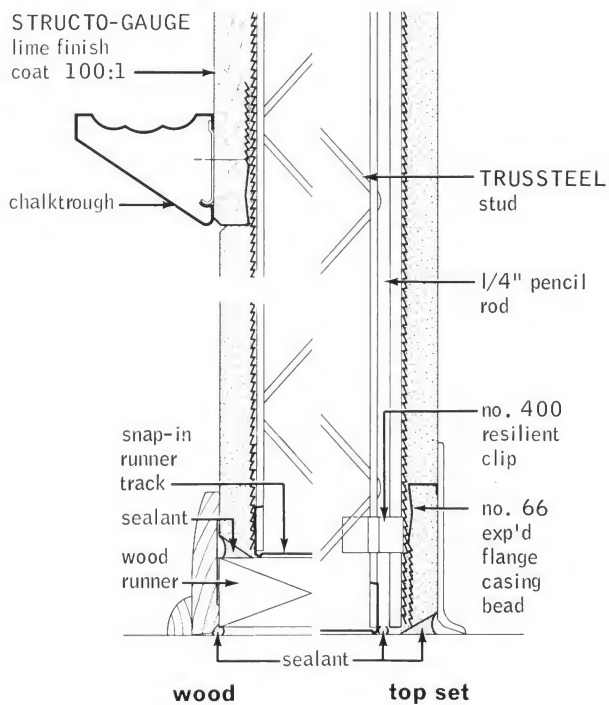
details/resilient attachment

scale: 3" = 1'-0"

ceiling attachments

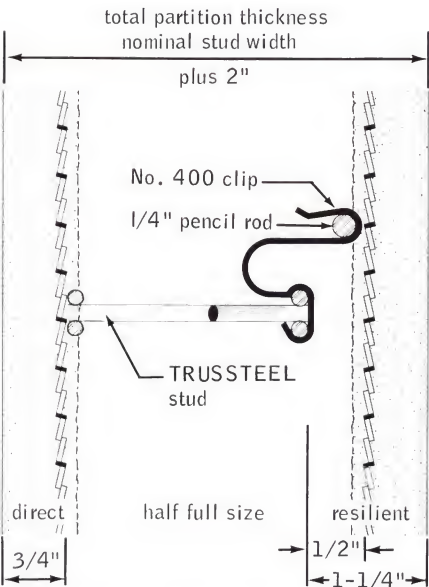


floor attachments

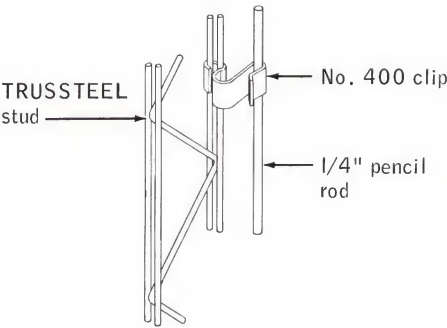


details/resilient attachment

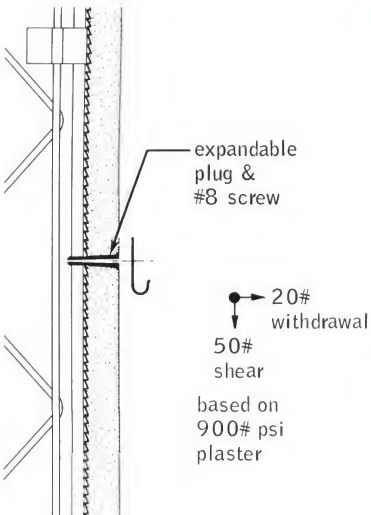
scale 3" = 1'-0"



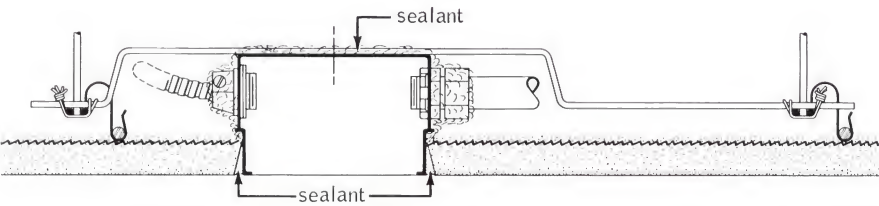
attachment of metal lath to TRUSSTEEL studs



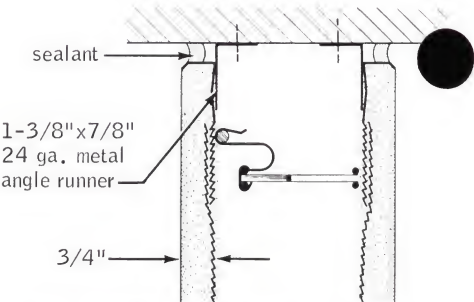
isometric



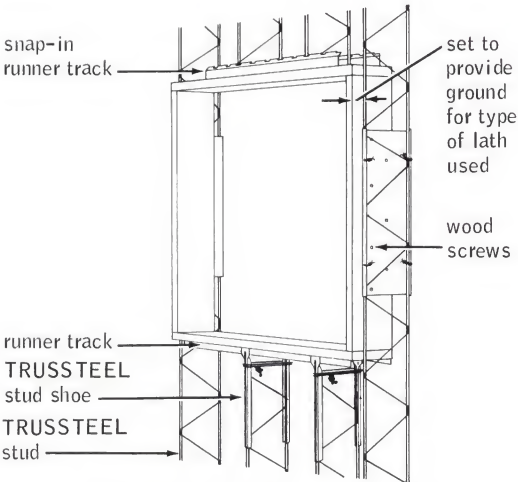
light fixture attachment



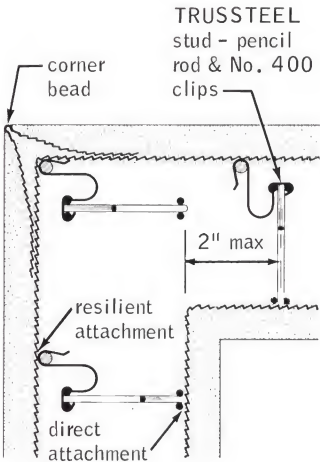
outlet box



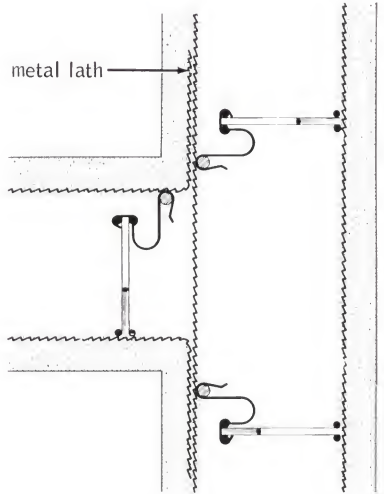
partition wall intersection



borrowed light or cabinet frame

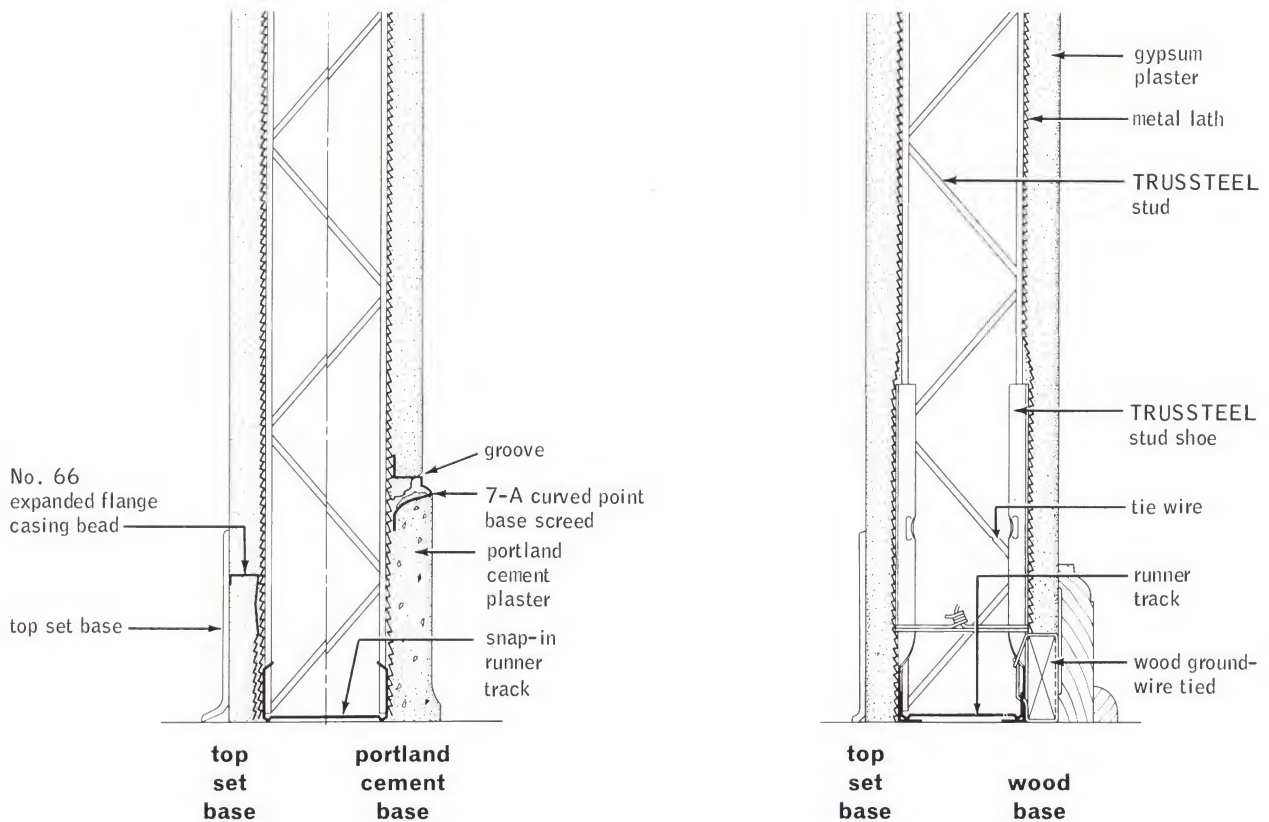
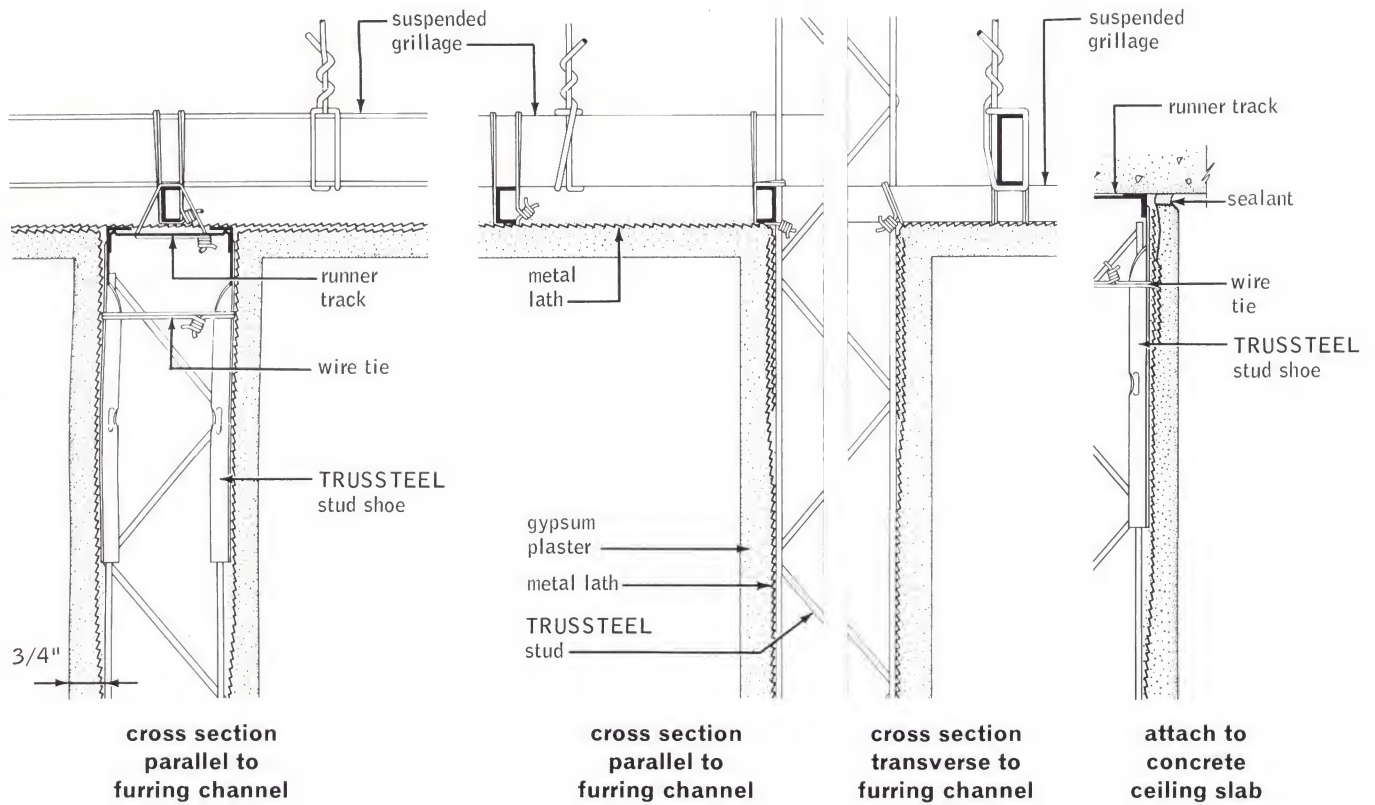


corner



partition intersection

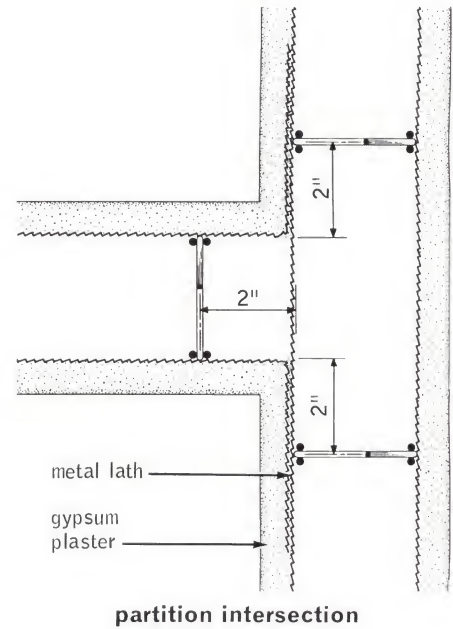
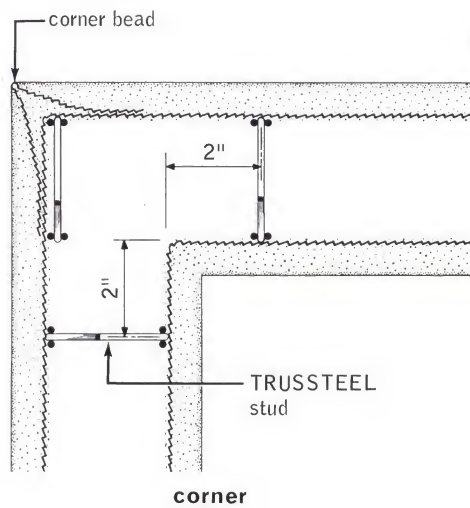
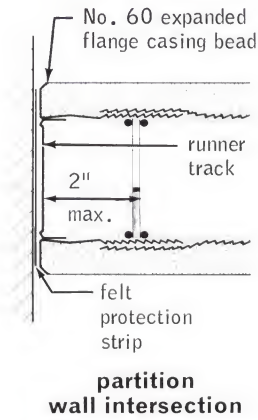
details/direct attachment



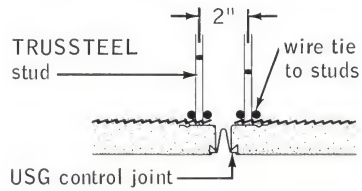
details/direct attachment

scale: 3" = 1'-0"

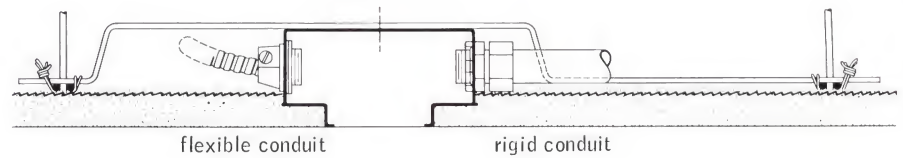
intersecting partitions



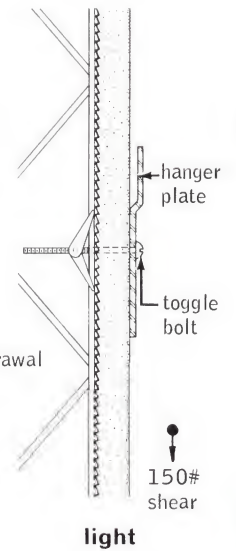
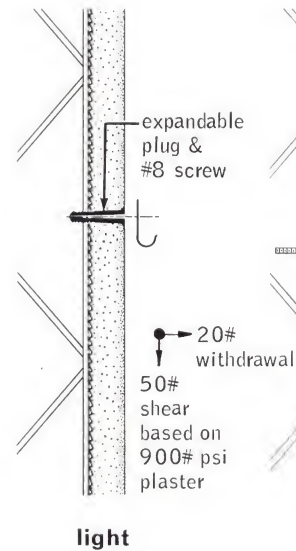
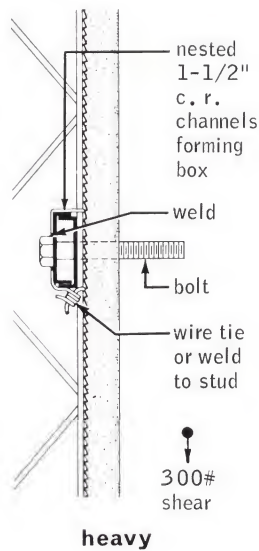
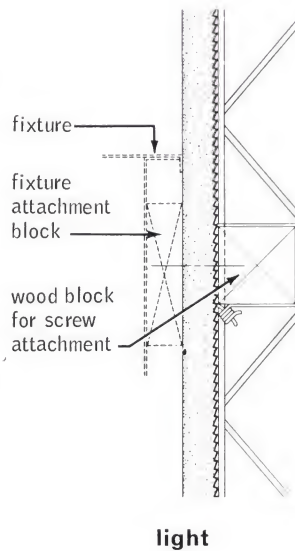
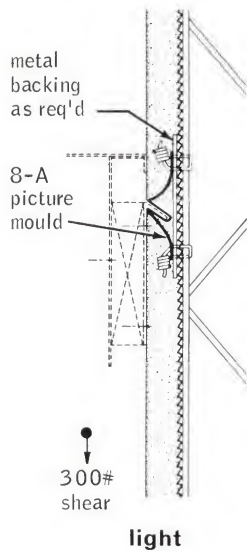
wall control joint



electrical outlet

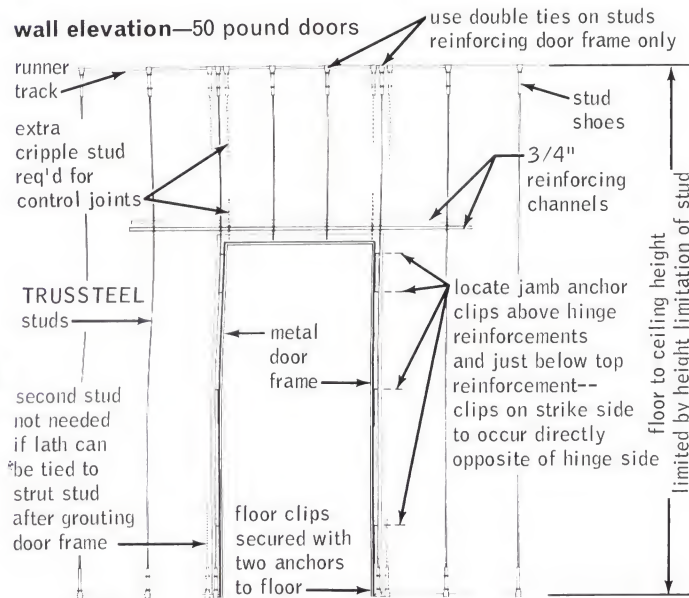


fixture attachments

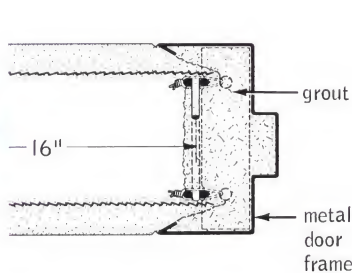
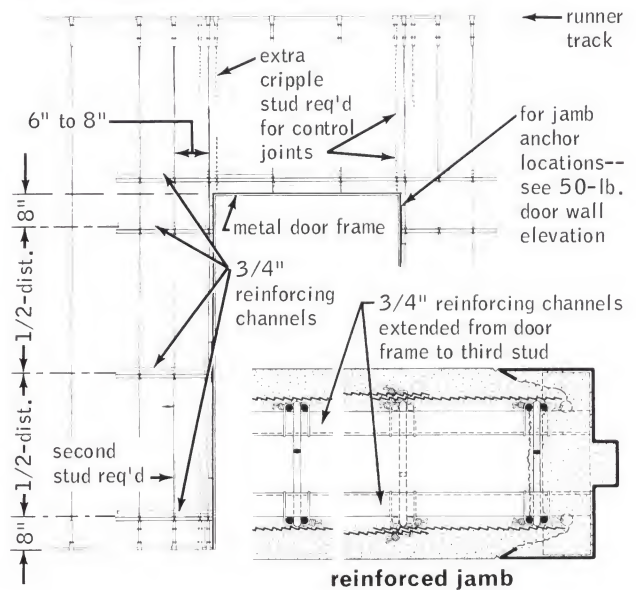
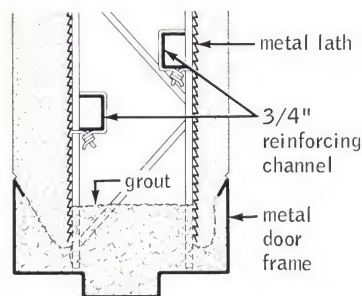


details/door frames

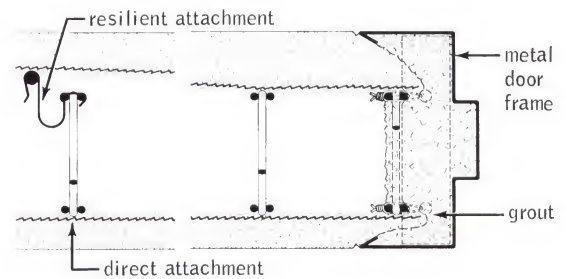
wall elevation—50 pound doors



wall elevation—50 to 200 pound doors

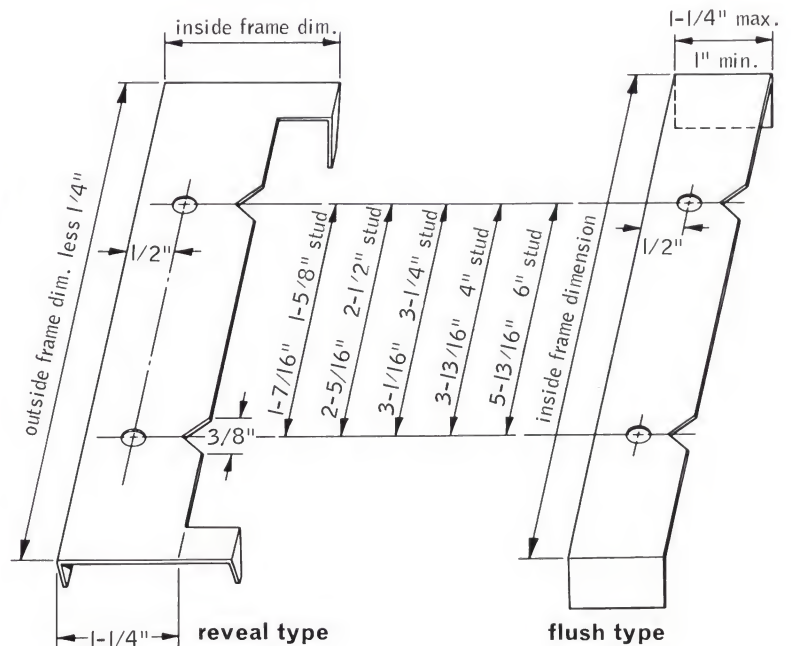
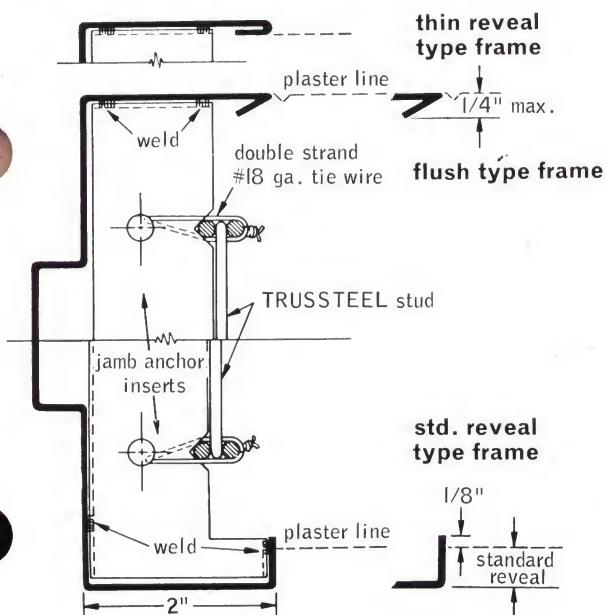
jamb section
direct attachment

head section



jamb section

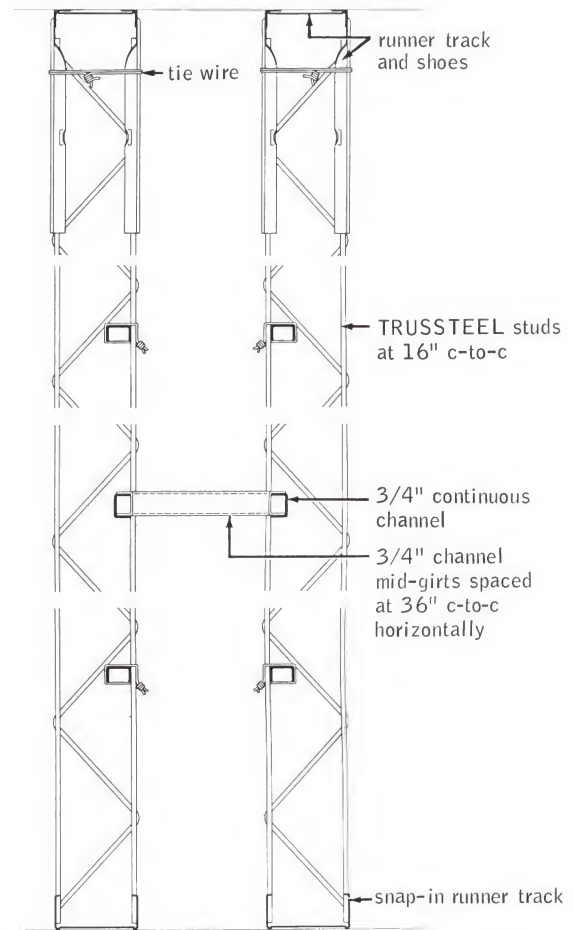
jamb anchor inserts/half size



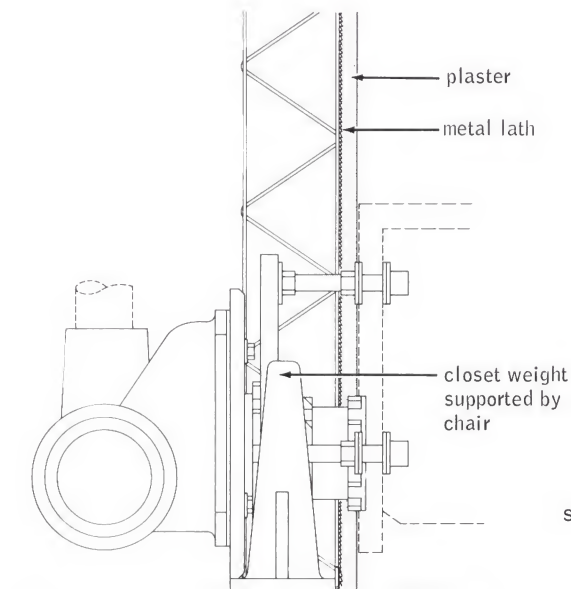
core walls

Core walls, as vertical shafts encasing the usual plumbing supply and waste lines, vent ducts and electrical conduits, require more free space than can be provided within the usual partition assembly.

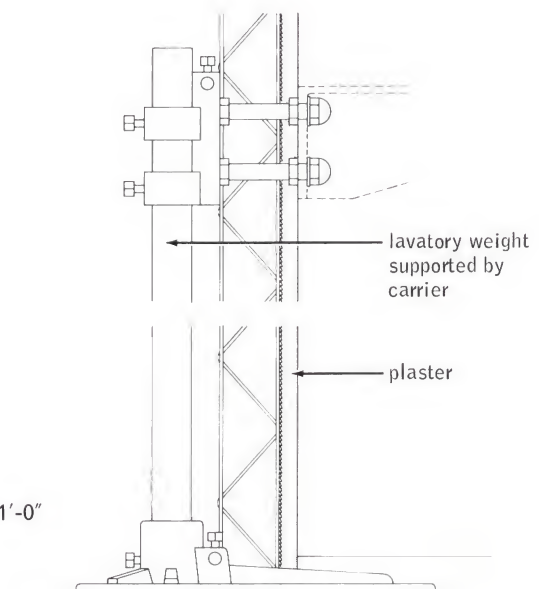
Core walls are easily constructed using TRUSSTEEL Studs and Metal Lath provided proper bracing is used to compensate for the stress skin action of the one side. The non-lathed side of the studs should be braced with $\frac{3}{4}$ " continuous channel girts at the quarter points vertically or 48" o.c. maximum, and $\frac{3}{4}$ " channel bracket mid-girts spaced 36" o.c. horizontally.



TRUSSTEEL stud core wall framing



closet carrier



lavatory carrier

scale: $1\frac{1}{2}" = 1'-0"$

exterior wall furring

description	relative cost index	comments	folder reference
TRUSSTEEL Studs 16" o.c. cross braced 4" o.c. on the back chord, 3,4# diamond mesh metal lath, 5/8" sanded basecoat plaster, lime putty finish coat	203	Free standing; allows for pipe chase clearance; no vapor barrier	a-1171

It is recommended that all exterior masonry walls be furred. Asphaltic or bituminous bonding agents are not recommended as a plaster base. TRUSSTEEL Studs, metal lath and plaster provide an exterior wall furring system that offers a maximum free space for encasement of pipes, ducts or conduits and a finished, readily decorated interior wall surface.

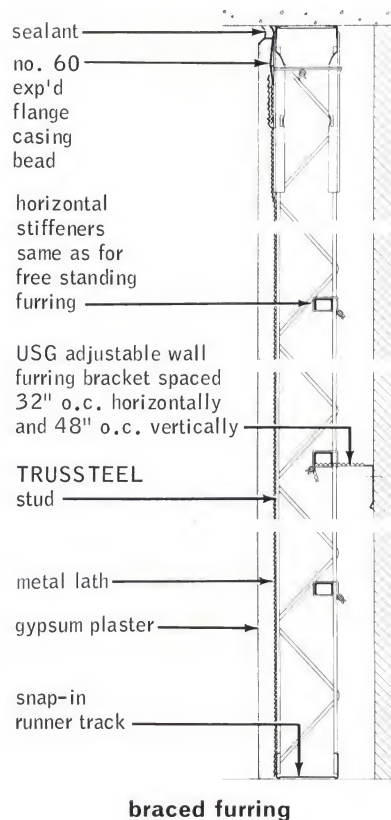
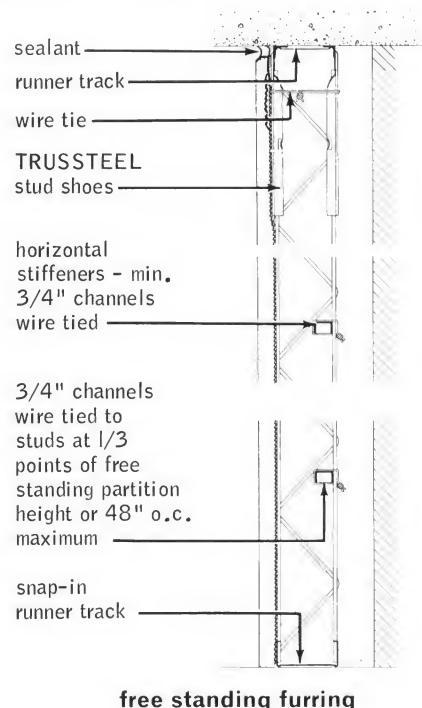
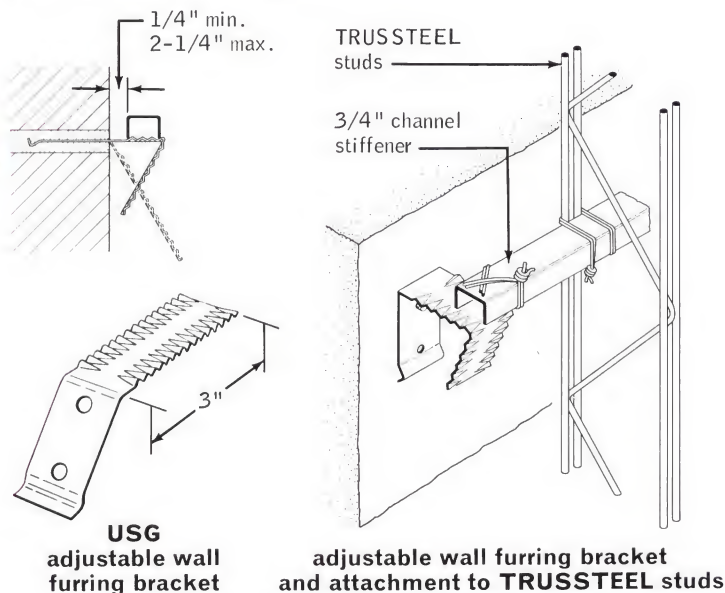
This construction consists of TRUSSTEEL Studs as vertical members braced with horizontal 3/4" channels. A channel at the mid-point between the floor and ceiling is attached to the wall with USG Adjustable Wall Furring Brackets not more than 32" o.c. horizontally. TRUSSTEEL Studs, with spacing determined by the maximum allowable spacing of supports for type of metal lath used (see table, page 10) are wire-tied to these horizontal channels. Metal lath is wire-tied to TRUSSTEEL Studs and plastered to 5/8" grounds, over face of lath. The Adjustable Wall Furring Brackets and extra channel at mid-height may be omitted to obtain free standing furring.

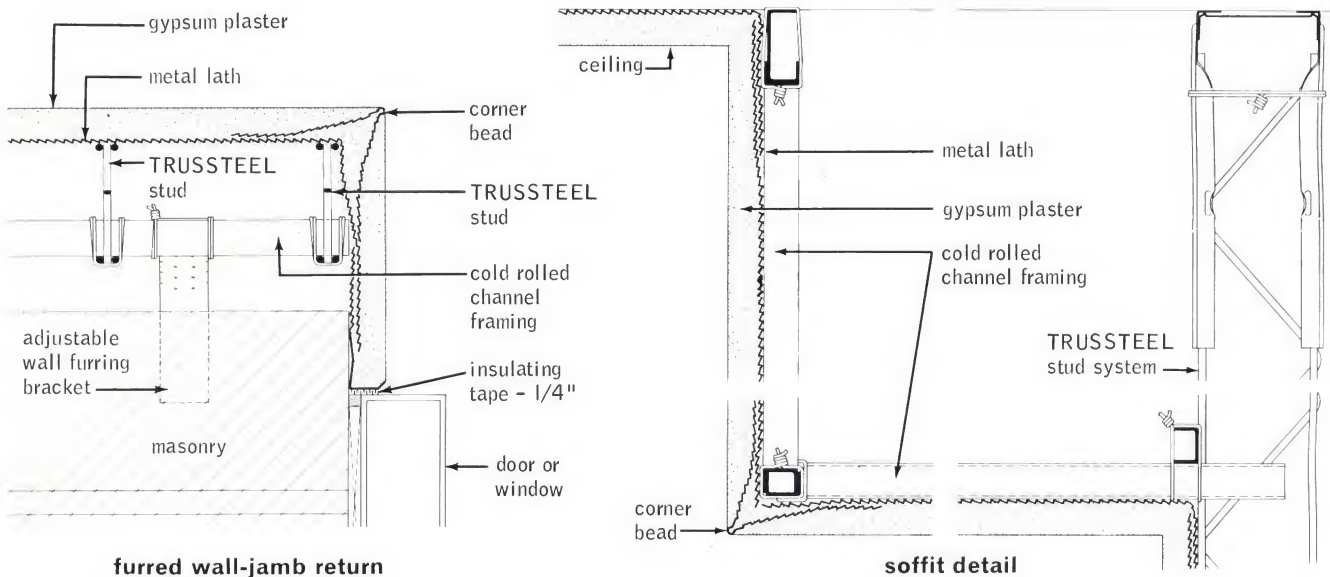
TRUSSTEEL stud size	maximum height ¹	
	braced furring	free-standing furring
1 5/8"	9'	6'
2 1/2"	15'	10'
3 3/4"	21'	14'
4"	22'	15'
6"	26'	17'

(1) Based on 16" spacing between studs.

adjustable wall furring brackets

1. Attach wall furring not more than 32" o.c. horizontally and 48" o.c. vertically.
2. After attachment, bend bracket to horizontal position.
3. Wire-tie plumbed channel to bracket 1/4" min. (2 1/4" max.) from wall.
4. Bend excess of bracket down.





limitations (continued from page 1)

- Door frames must be fabricated and anchored to prevent twisting and impact vibration (see detail, page 7).
- To retain maximum sound isolation, precautions must be taken to prevent sound leakage (see Specifications, page 10).
- Where mechanically suspended acoustical tile ceilings are used, finished partitions should extend from structural slab to structural slab, closing all openings (see Notes, below).
- 2.5# metal lath and 1/8" Riblath not recommended for resilient attachment.
- Resiliently attached metal lath and plaster should be applied to only one side of TRUSSTEEL Stud.

partition thickness—limiting heights

stud width	section modulus	finished thickness		maximum partition heights (1)	
		diamond mesh or 3/8" riblath	resilient diamond mesh	studs 16" o.c.	studs 19" o.c.†
1 3/8"	.0635"³	3 3/8"	(2)	9'	—
2 1/2"	.1056"³	4"	4 1/2"	15'	14'
3 1/4"	.1420"³	4 3/4"	5 1/4"	21'	18'
4"	.1825"³	5 1/2"	6"	22'	20'
6"	.277"³	7 1/2"	8"	26'	24'

(1) Resilient partition limiting height is 10'. (2) Not recommended for resilient attachment. † 3/8" 3.4 lb. Z-riblath.

specifications

notes to architect

- All fire-rated partitions require TRUSSTEEL Stud attachment to TRUSSTEEL or Snap-In Runner Track by TRUSSTEEL Stud Shoes at the ceiling.
- Snap-In Runner Track with studs cut accurately to length may be used for a floor and ceiling attachment where construction is non fire-rated. This track may be used at the floor on fire-rated partitions.

- Metal door and borrowed-light frame material should be at least 16-ga. steel, shop primed, with throats accurately formed to overall thickness of partition. They should be anchored at floor with 14-ga. steel plates welded to trim flanges, with provision for two power-driven anchors or equal per plate. Four jamb anchor inserts should be provided in each jamb, welded to the trim returns.

Grouting and additional reinforcement at the jamb are recommended for all door frames and are required for heavy (over 50 lbs. with hardware) or oversize doors which also require use of door closers and bumpers. Grout should be raked out to allow insertion of lath and plaster into frame; lath and plaster must not terminate against trim.

- Lath and plaster surfaces should be isolated with control joints or other means where: (a) partition abuts a structural element (except floor) or dissimilar wall or ceiling; (b) construction changes within the plane of the partition; (c) partition run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.

- Penetrations of the lath and plaster diaphragm, such as door frames and borrowed-light openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

- Where a plaster surface is flush with metal, metal bucks, metal windows, or metal base, the plaster should be grooved between the two materials.

- Fixture Attachment—Lightweight fixtures and trim should be installed using plastic plugs or other expandable anchors for screw attachment. Heavy fixture attachment is not recommended on resilient lath and plaster surfaces.

Wood inserts for fixture attachment on non-resilient surfaces must always be wire-tied to inside of stud chords to prevent breaking up stress skin of lath and plaster.

- Ceramic Tile—Where ceramic tile is required, a portland cement-lime plaster may be applied in scratch and brown coats to 3/8" grounds over metal lath as a base. Ceramic tile may also

be adhesively attached over the finished gypsum plaster in accordance with adhesive manufacturer's specifications.

9. Where these partitions are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs, such as at electrical boxes, and at the perimeter of the partition. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. Use sand aggregate only. Door and borrowed-light openings are not recommended in sound control partitions.

10. Zinc alloy accessories are recommended where corrosion due to high humidity or saline content of aggregate is possible.

11. See U.S.G. product folders in this series: Gypsum Plasters Folder for Plaster Specifications; Plaster Bases & Accessories Folder for General Lathing Specifications; Paint Products Folder for Paint Specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

In cold weather, all glazing shall be completed and the building heated to a minimum of 55°F. Before lathing, ventilation shall be provided to carry off excess moisture.

Part 2: products

2.1 materials

- a. TRUSSTEEL Runner Track—widths 1 5/8", 2 1/2", 3 1/4", 4", or 6" (see Note 2, page 10).
- b. TRUSSTEEL Snap-In Runner Track—widths 1 5/8", 2 1/2", 3 1/4" or 4" (see Note 2, page 10).
- c. TRUSSTEEL Studs—widths 1 5/8", 2 1/2", 3 1/4", 4", or 6" (see Note 1, page 10).
- d. TRUSSTEEL Stud Shoes.
- e. No. 400 Resilient Clip.
- f. USG Corner Bead (specify style from page 2).
- g. USG Casing Bead (specify type from page 2).
- h. USG Base Screed (specify type from page 2).
- i. USG 8-A Picture Mould.
- j. USG Cold Rolled Channels 3/4", 1 1/2", 2".
- k. SUPER-TITE clip.
- l. 18 ga. tie wire.
- m. 1/4" Pencil Rods.
- n. Metal Lath shall be 3.4 lb. (Diamond Mesh) (Z-Ribblath) (poly-backed Diamond Mesh) 27" x 96".
- o. USG Adjustable Wall Furring Bracket.
- p. THERMAFIBER® Sound Attenuation Blankets 2" x 24" x 48".
- q. USG Control Joint.
- r. USG Acoustical Sealant.

Part 3: execution

3.1 stud system erection

Install TRUSSTEEL Studs of the size shown on the plans or as herein specified, spaced max. 16" o.c. Accurately align all partitions according to the partition layouts.

Securely attach runner tracks:

1. **To concrete slabs**—Using concrete stud nails or power-driven anchors, spaced max. 24" o.c.
2. **To ceiling grillage**—Wire tie, using a double strand of 18-ga. tie wire, spaced max. 24" o.c.
3. **To plaster or gypsum base**—Toggle bolt or wire tie, spaced max. 24" o.c.

Place studs, cut to nominal ceiling height, vertically into and resting upon floor runner track. Top of studs can be no more than 3/8" from ceiling with Snap-In Track; no more than 3" from ceiling with TRUSSTEEL Runner Track.

Secure studs to Snap-In Track by twisting until studs engage notches in both floor and ceiling tracks; to TRUSSTEEL Track with TRUSSTEEL Stud Shoes, crimped or wire tied with double-strand 18-ga. wire. Secure studs immediately adjacent to door and borrowed light frames with two wire ties of double-strand 18-ga. wire.

3.2 wall furring erection

On partitions designated as vertical furring, bridge back chord of TRUSSTEEL Stud using continuous 3/4" channels at third points or not to exceed 48" o.c. and at mid-height. Saddle-tie channels to each stud.

On braced furring securely attach mid-point bridging channel to masonry back-up with USG Adjustable Wall Furring Brackets 32" o.c.

Install USG Adjustable Wall Furring Brackets, with crimped edges up using (one 2" cut nail in mortar joints or brick, clay tile, or concrete block or in field of lightweight aggregate blocks) (3/8" concrete stud nails or power driven nails or other suitable fasteners in monolithic concrete) driven through top hole of bracket. Apply brackets to masonry walls at mid-height of furred wall and space not over 4" from columns or other abutting construction and not over 32" o.c. horizontally and 48" o.c. vertically, and as required above and below windows. Lay mid-height furring channel horizontally on furring brackets with legs down, and wire-tie to bracket with double-strand 18-ga. tie wire. Bend excess bracket length down.

3.3 door frames

Insert studs into steel door frame engaging notches of jamb anchor clips, and securely wire tie each chord of stud to jamb anchor. Install second stud each side of door frame, approximately 2" from strut stud.

Install two 3/4" cold rolled channels over head of door, extending out to engage third stud on each side. For heavy oversize doors, install additional horizontal reinforcing channels in pairs each side of door jamb and position 8" from head and floor and at mid-height. Securely tie these aligning channels to inside of stud chord at each intersection.

3.4 direct plaster base attachment

Apply lath with long dimension across supports and with end joints staggered in adjacent rows. Lap ends at least 1" and sides of diamond mesh lath at least 1/2". Lap sides of riblath by nesting outside ribs. At all interior angles form metal lath into corners and carry out onto abutting surface.

Secure diamond mesh lath to all supports with SUPER-TITE clips at intervals not exceeding 6", except where sheets overlap,

use 18-ga. tie wire. Securely tie end laps between supports with 18-ga. tie wire.

Secure riblath to all supports with 18-ga. tie wire. Between supports, wire-tie sheets together at intervals not exceeding 9".

3.5 resilient plaster base attachment

Install Resilient Clips No. 400 by snapping over chord of TRUSSTEEL Stud. Space clips no more than 12" o.c. and within 4" of floor and ceiling. With studs spaced 12" o.c., clips may be spaced 16" o.c. Attach 1/4" Pencil Rods cut to ceiling height by snapping into small loop of clip.

Apply 3.4-lb. diamond mesh lath with long dimension across supports and with end joints staggered in adjacent rows. Lap ends at least 1" and sides at least 1/2". At all interior angles form lath into corners and carry out onto abutting surface. Secure lath to TRUSSTEEL Studs with SUPER-TITE clips at intervals not exceeding 6", except where sheets overlap, use 18-ga. tie wire. Wire-tie lath to pencil rods at intervals not exceeding 6". Securely tie end laps between supports with 18-ga. tie wire.

3.6 accessory application

a. Metal Corner Bead—Provide on all external plaster corners in single lengths whenever possible. Fasten securely with wire-ties spaced 8" o.c. max.; stagger in two wings.

b. Casing Bead—Install where indicated to provide full plaster grounds. Cut and miter end accurately. Wire-tie in place.

c. Base Screed—Install 6" above finish floor, unless otherwise indicated. Set screeds level, true to line, in lengths as long as practical, with joints aligned with a suitable splice. Wire-tie in place.

d. Control Joint—Provide as detailed and where indicated. Wire-tie in place.

e. Reinforcing—Install a strip of self-furring diamond mesh lath over joints between dissimilar plaster bases. At all openings, reinforce corners by attaching a 12"x24" piece of self-furring diamond mesh lath diagonally across corners.

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (metal products); TRUSSTEEL (metal studs, accessories); THERMAFIBER (insulating wool); SUPER-TITE (clips).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr. est	Stl Stud—Resil Gypsum Lath & Plaster—2½" TRUSSTEEL studs 16" o.c.—TR-1 clips one side & TL-1 clips opp side—¾" perf ROCKLATH—½" 100:2 gypsum sand plaster—perimeter caulked wt 12 width ¾"	TL-69-14 (s)		46	128	Can improve STC with THERMAFIBER sound blankets stapled to back of direct-applied side per 125-FT test	a-1181
1 hr. est	Stl Stud—Resil Gypsum Lath & Plaster—¾" TRUSSTEEL Studs 16" o.c.—2" THERMAFIBER sound atten blkts—TR-1 clips one side & TL-1 clips opp side—¾" ROCKLATH—½" 100:2-100:2 gypsum sand plaster—perimeter caulked wt 14 width ½"	USG-125-FT-G&H (s) CK-664-38 (s) GA-2-3-4-FT-G&H (s) Field Test KSO-1090072-b (s)	49 50 47	52 46	150	Est. fire rating, GA-2-3-4-FT-G&H and CK-664-38 based on perf. ROCKLATH. 2 caulked outlets on each side in field test	a-1181
1 hr.	Stl Stud—Gypsum Lath & Plaster—2½" TRUSSTEEL studs 16" o.c.—¾" perf ROCKLATH—½" 100:2-100:2 gypsum sand plaster wt 13 width ½"	T-309-OSU (f) TL-58-7 (s)			125	Record of proven performance	a-1181
1 hr.	Stl Stud—Gypsum Lath & Plaster—1½" TRUSSTEEL studs 16" o.c.—¾" perf ROCKLATH—½" 100:2-100:2 gypsum sand plaster wt 13 width ¾"	T-887-OSU (f) TL-58-7 (s)			123	Good alternate for most solid partitions	a-1181
2 hrs.	Stl Stud—Gypsum Lath & Plaster—2½" TRUSSTEEL studs 16" o.c.—¾" perf ROCKLATH—¾" 100:2-100:2 gypsum perlite plaster wt 11 width 5"	T-1813-GA-OSU (f)	N/A		132	Excellent fire rating at a low cost	a-1181

For wall furring application, see page 9.

description

These partition assemblies consist of ROCKLATH Plaster Base, either plain or perforated types, attached to open-web TRUSSTEEL Studs. The lath is either directly fastened to the stud or resiliently attached by means of USG® Resilient Clips. By using these specially designed resilient clips, the lath and plaster diaphragm is not rigidly coupled to the studs. The excellent sound-isolative efficiency of this system results from this resilient mounting of the plaster membrane and the column of air formed within the TRUSSTEEL Studs (see table above).

TRUSSTEEL Studs utilize a truss design for superior strength, are fabricated in five stud widths (see table, page 10) and mill cut to job lengths. Studs are attached to the floor and ceiling by means of runner tracks and stud shoes.

ROCKLATH, a gypsum core faced on both sides with special paper, forms a rigid base for the economical application of gypsum plasters. For this assembly, ROCKLATH is ¾" thick, available in two types, (Perforated or Plain) and two sizes (see Specifications, page 10). In perforated ROCKLATH, ¾" round holes are punched through the lath 4" o.c. in each direction. This provides a mechanical key in addition to the plaster bond, and generally obtains a higher fire resistance rating than with Plain ROCKLATH Plaster Base (see table above).

function and utility

The open web of the truss design provides a maximum of free space for encasing pipes, conduits or ducts, horizontally, vertically or diagonally, without impairing the structural integrity of the assembly.

Sound Isolation—Very good sound isolation at a low cost. Where greater sound isolation is needed, THERMAFIBER* Sound Attenuation Blankets can be inserted in the space between studs.

Fire Protection—Incombustible components provide systems with 1-hour and 2-hour fire-resistance ratings (see table above).

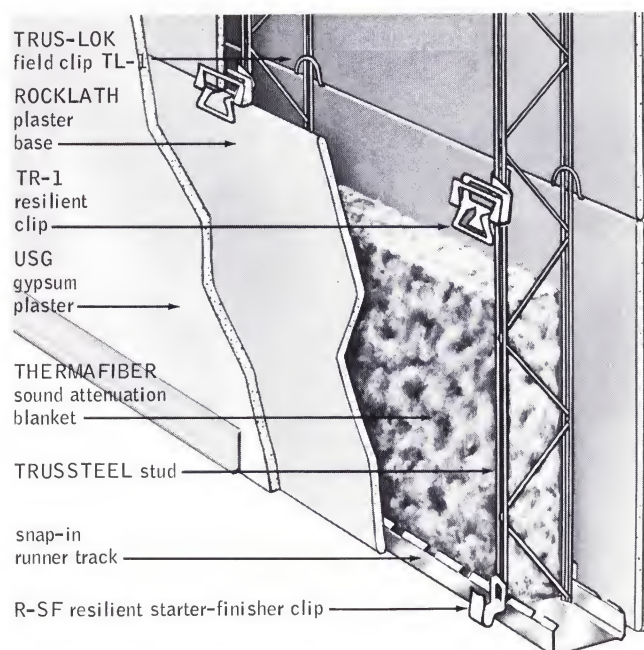
Strength—TRUSSTEEL Studs are formed of No. 7 gauge cold drawn wire, with a tensile strength of 90,000 psi. The resist-

ance moment computed on the section modulus with the high tensile strength produces an exceptionally strong non-load bearing steel stud.

Economical—The structural integrity, the strength, the sound isolation, the open core wall and fire protection are provided by TRUSSTEEL Stud partitions at a lower cost than by other incombustible assemblies.

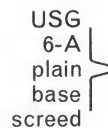
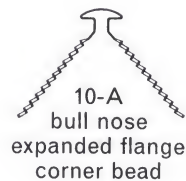
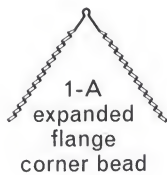
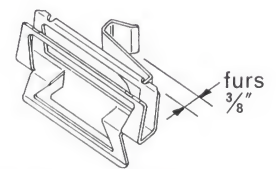
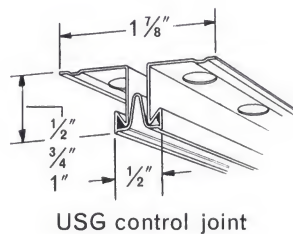
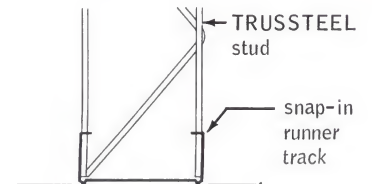
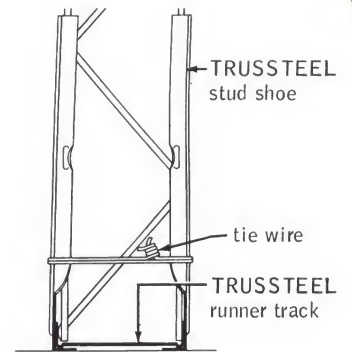
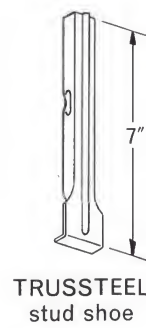
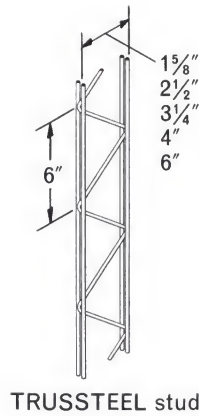
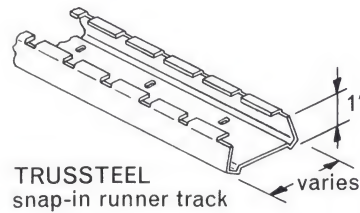
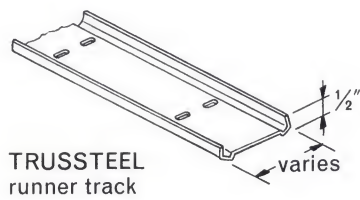
Performance—TRUSSTEEL Studs have been used since 1933 and now account for the majority of all non-load bearing steel studs used nationally. The continued high level of use indicates their acceptance based on their performance.

(continued on page 10)

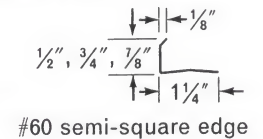
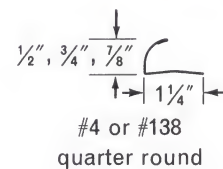
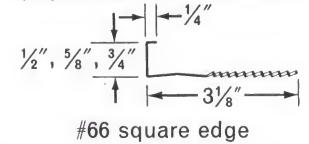


*Reg. U.S. Pat. Off.

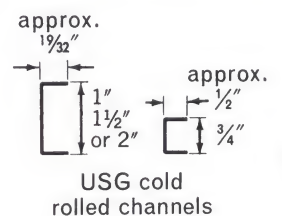
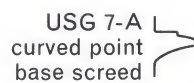
components



USG casing beads (expanded or short flange)



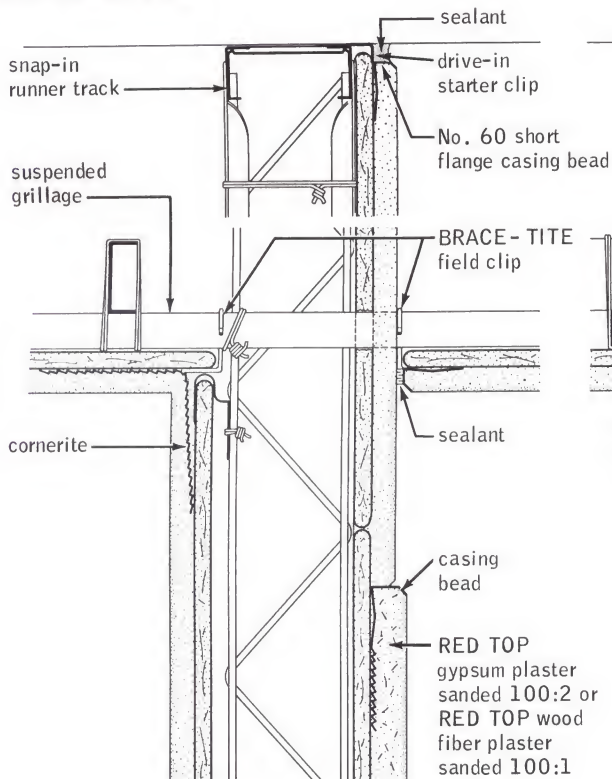
see "plaster bases" product catalog for full description on accessories & sizes



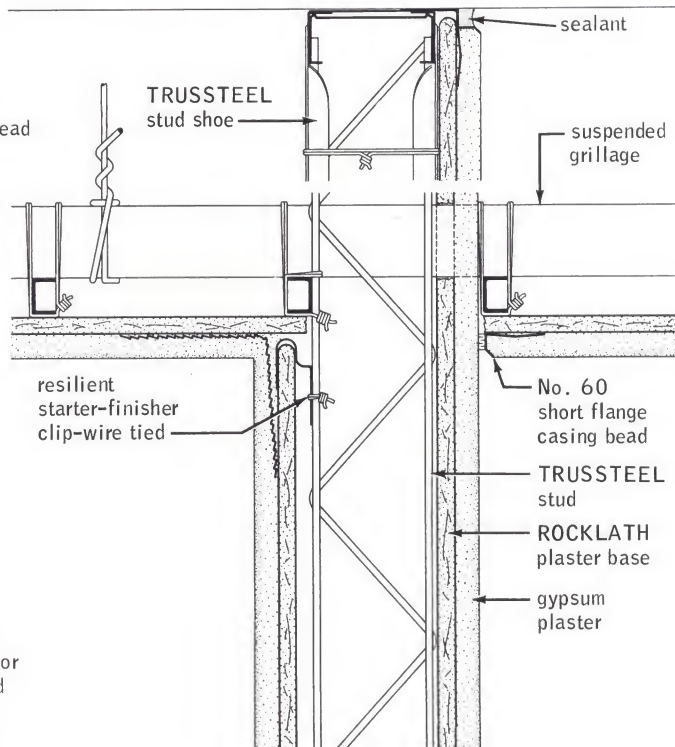
details/resilient attachment

scale: 3" = 1'-0"

ceiling attachments

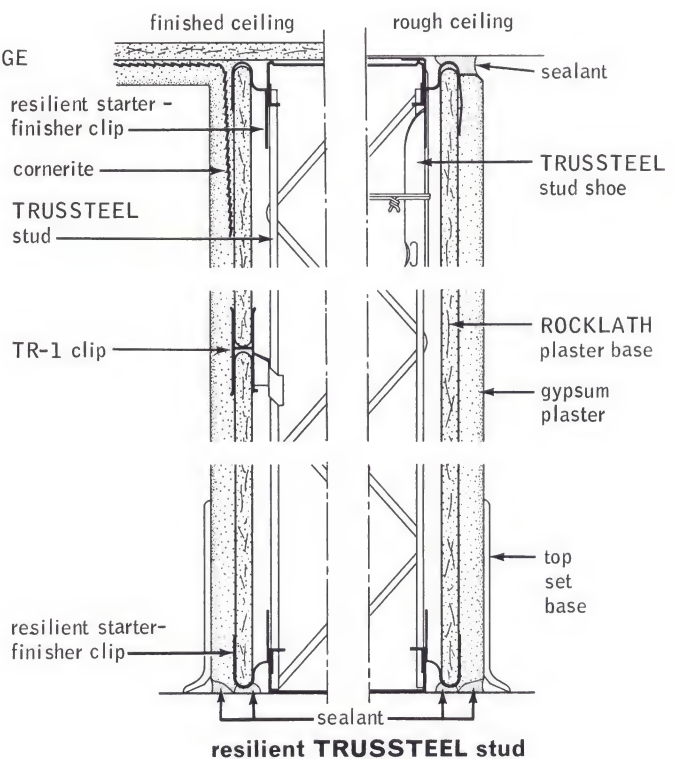
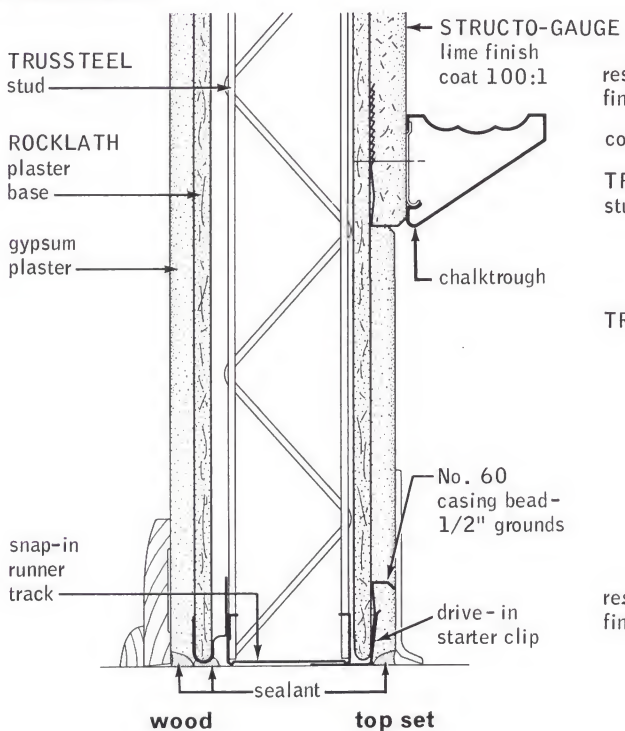


cross section transverse to furring channel



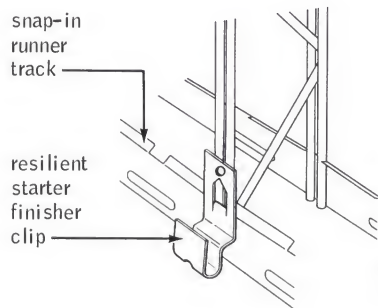
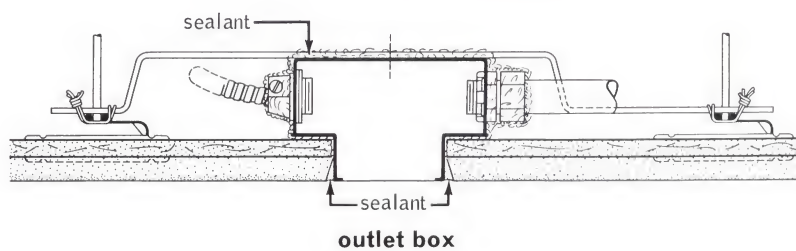
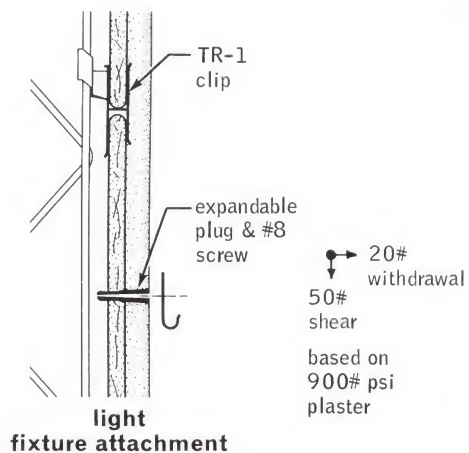
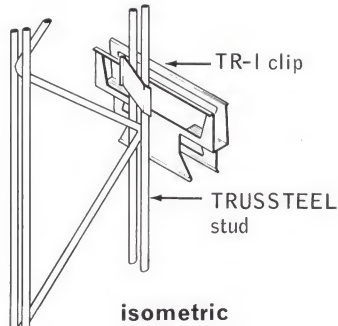
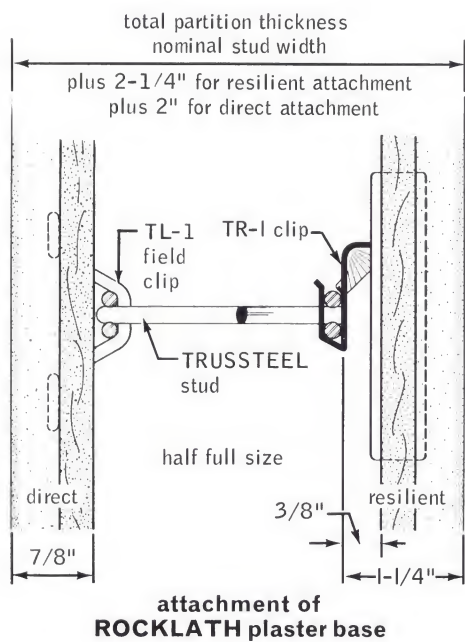
cross section parallel to furring channel

floor attachment

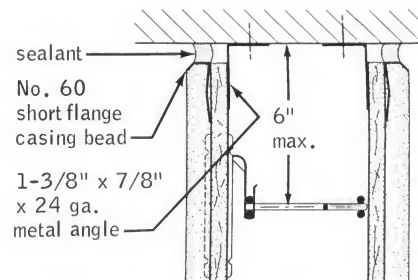
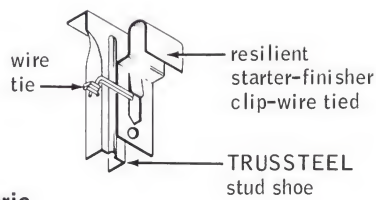


details

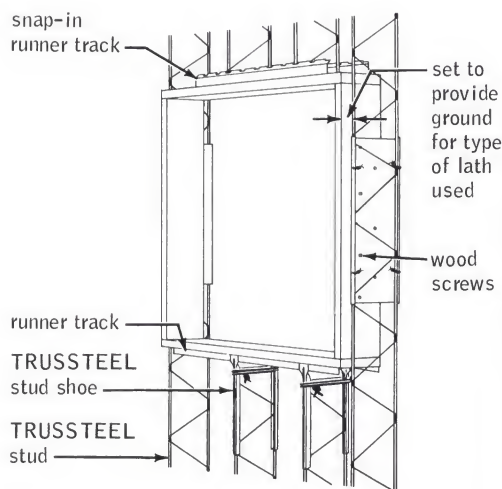
scale: 3" = 1'-0"



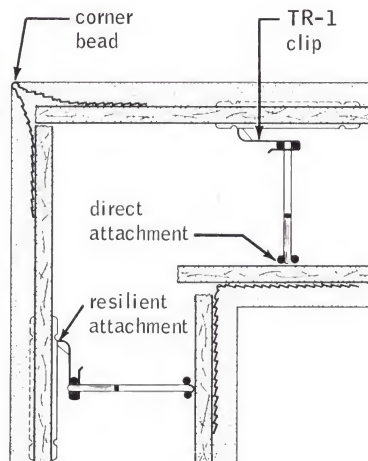
isometric



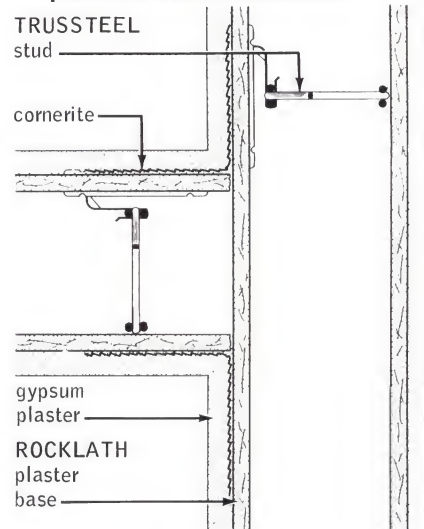
partition wall intersection



borrowed light or cabinet frame



corner

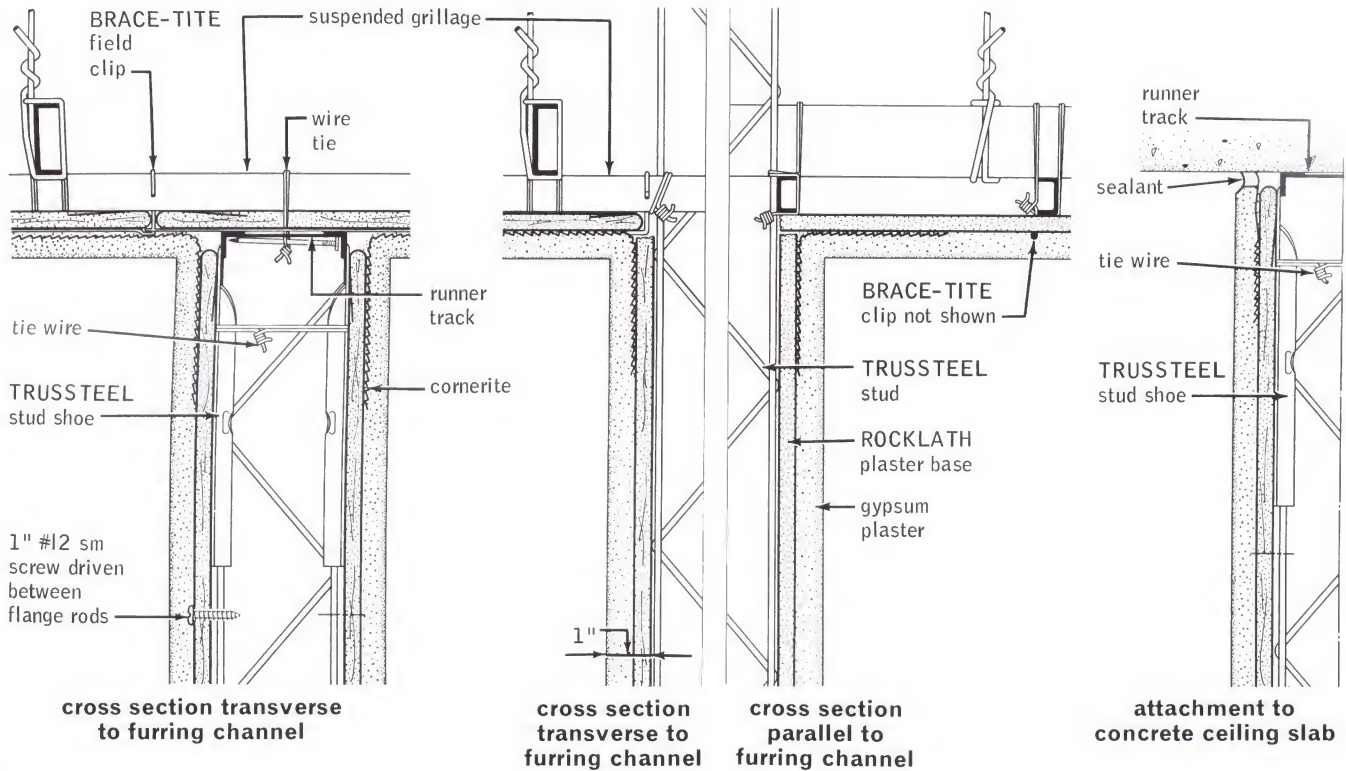


**partition
intersection**

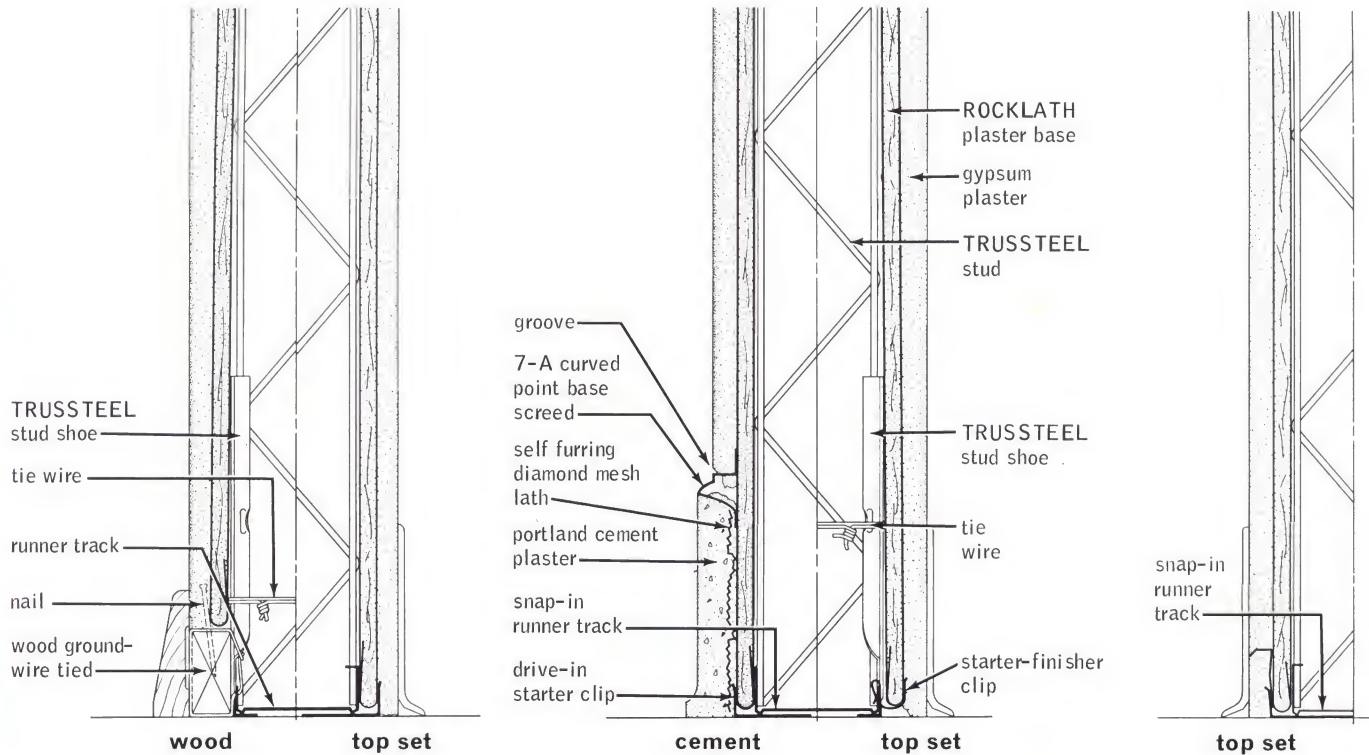
details/direct attachment

ceiling attachments

scale: 3" = 1'-0"



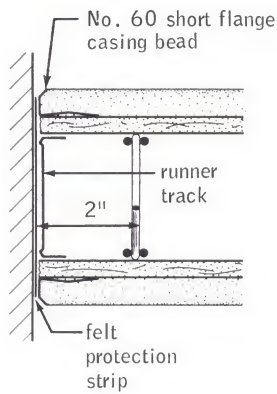
floor attachments



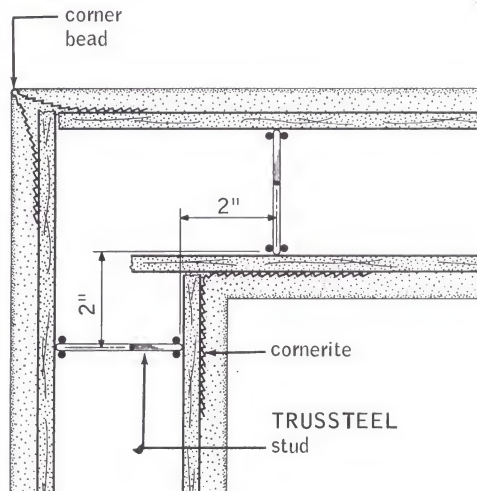
details/direct attachment

scale: 3" = 1'-0"

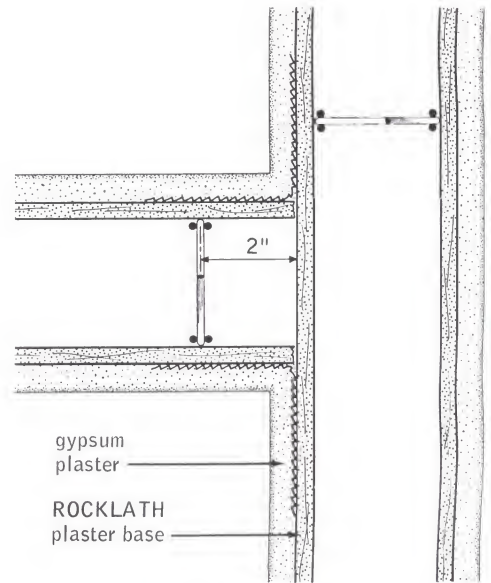
intersecting partitions



partition wall intersection

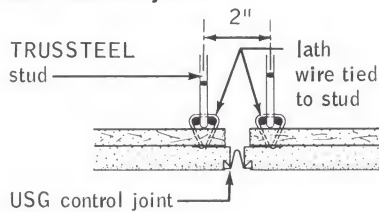


corner

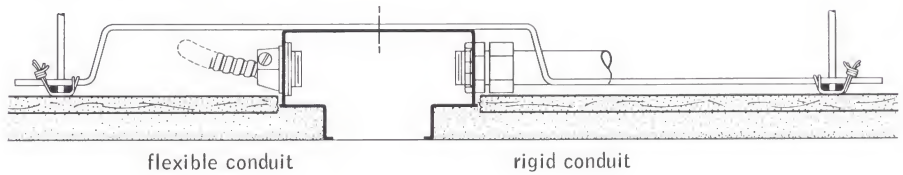


partition intersection

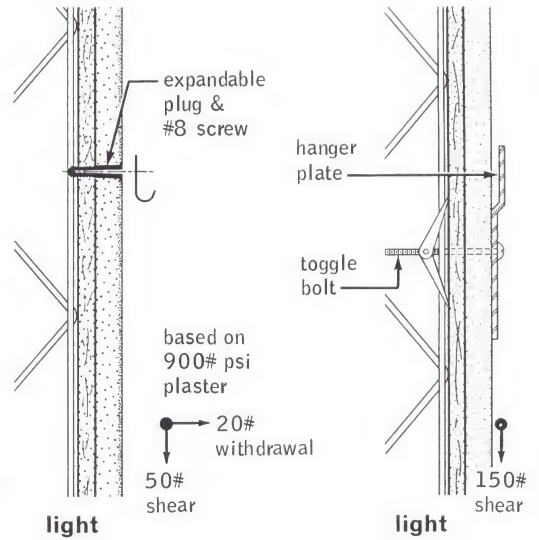
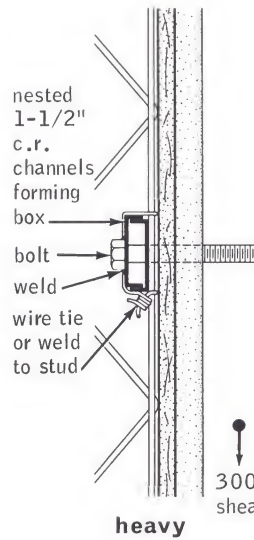
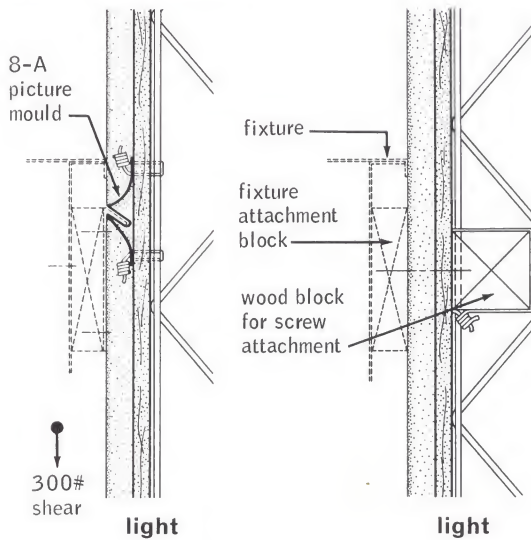
wall control joint



electrical outlet

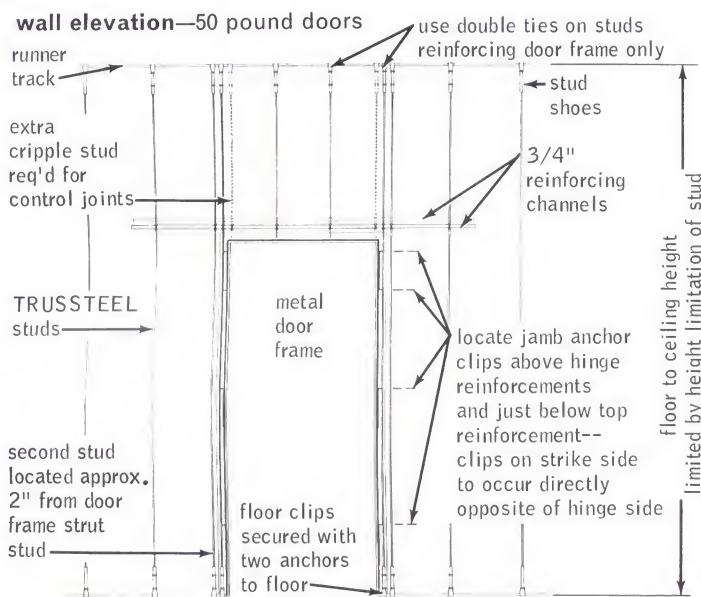


fixture attachments

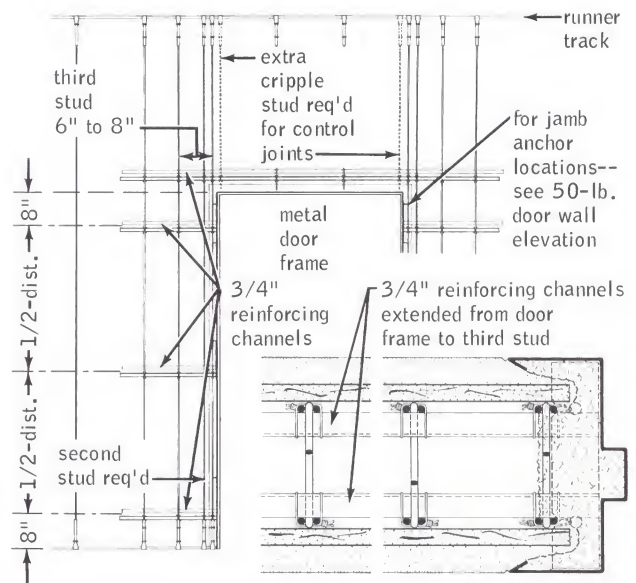


details/door frames

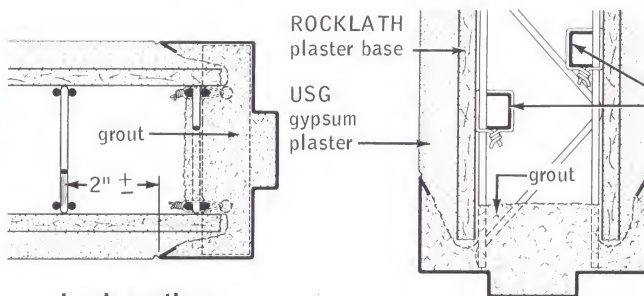
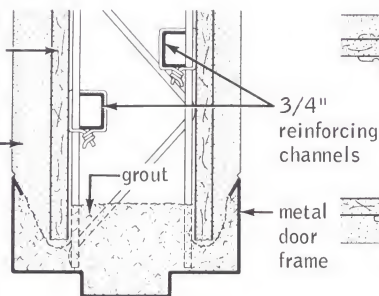
wall elevation—50 pound doors



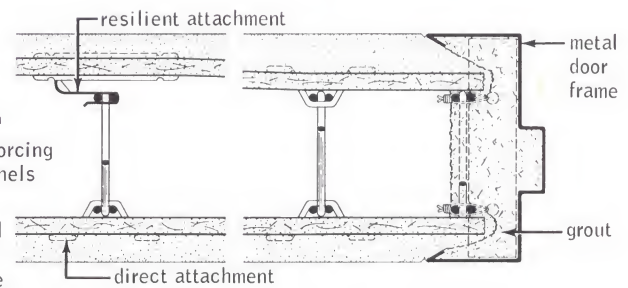
wall elevation—50 to 200 pound doors



reinforced jamb

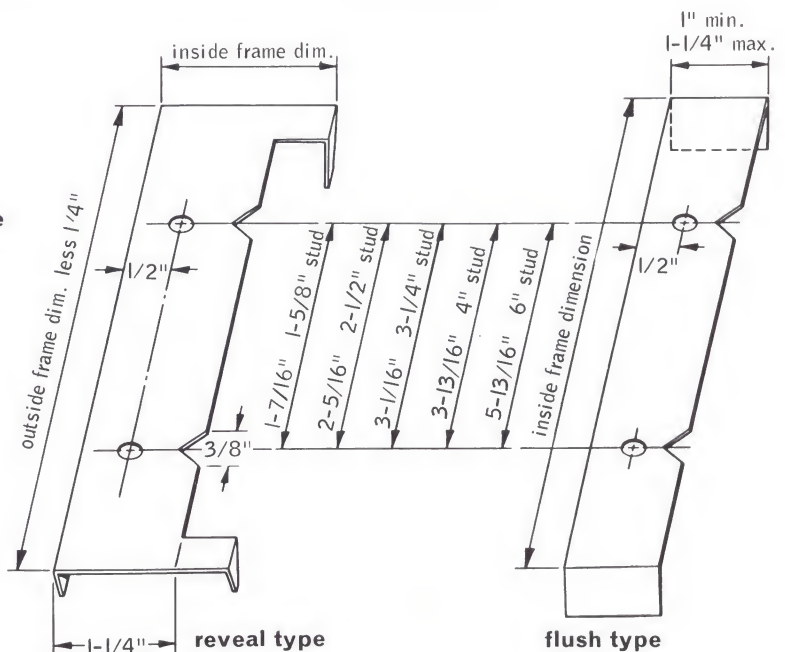
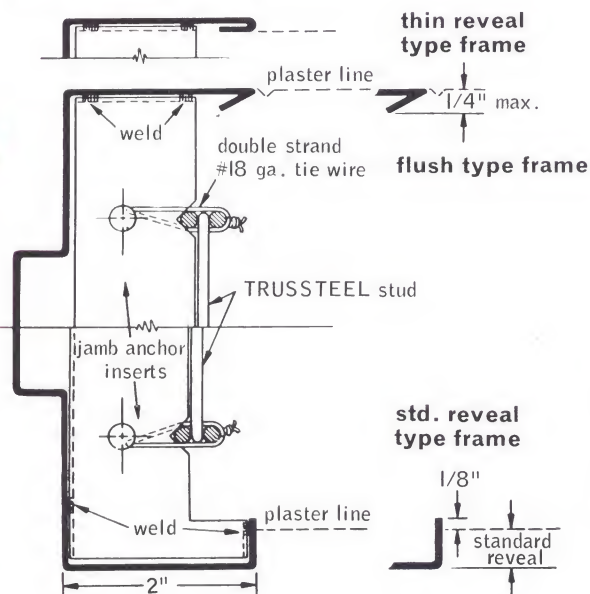
jamb section
direct attachment

head section



jamb section

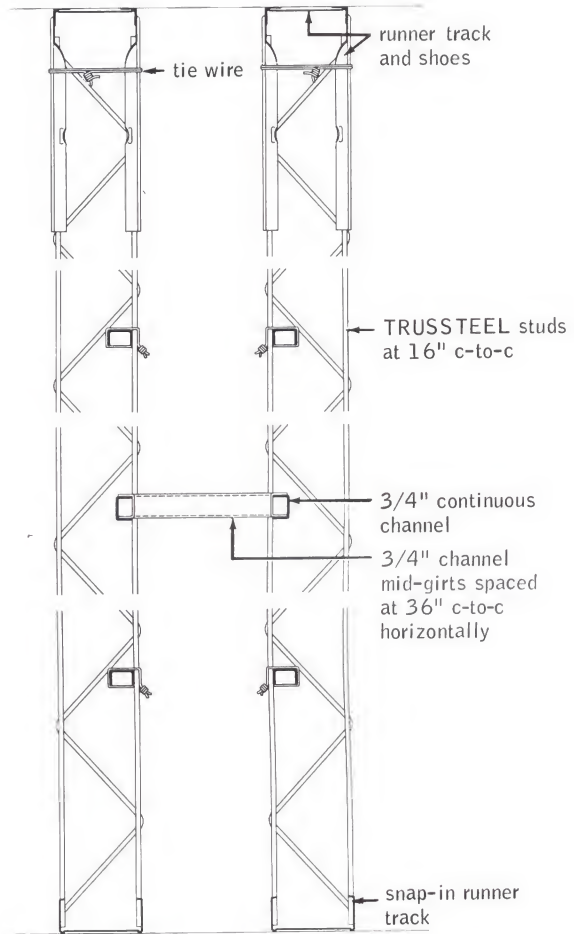
jamb anchor inserts/half size



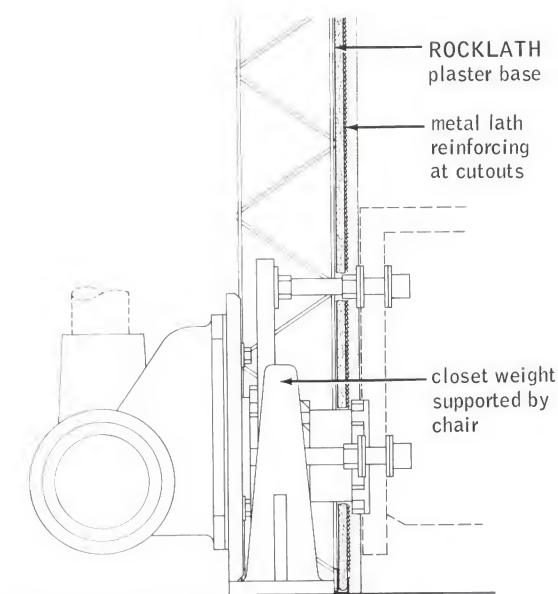
core walls

Core walls, as vertical shafts encasing the usual plumbing supply and waste lines, vent ducts and electrical conduits, require more free space than can be provided within the usual partition assembly.

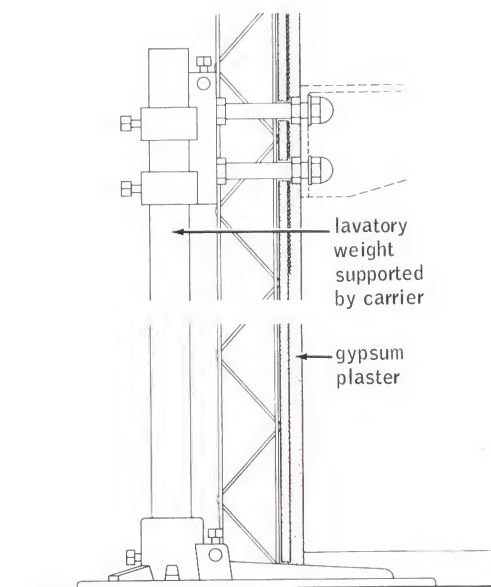
Core walls are easily constructed using TRUSSTEEL Studs and ROCKLATH, provided proper bracing is used to compensate for the stress skin action of the one side. The non-lathed side of the studs should be braced with $\frac{3}{4}$ " continuous channel girts at the quarter points vertically or 48" o.c. maximum, and $\frac{3}{4}$ " channel bracket mid-girts spaced 36" o.c. horizontally.



TRUSSTEEL stud core wall framing



closet carrier



lavatory carrier

exterior wall furring

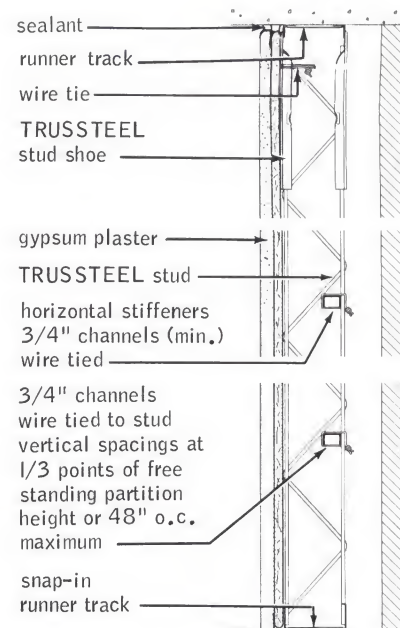
description	relative cost index	comments	folder reference
TRUSSTEEL* Studs 16" o.c. cross braced 4' o.c. on back chord, 3/8" Insulating ROCKLATH attached with TL-1 Clips, 1/2" sanded basecoat plaster, lime putty finish	185	Free standing; allows for pipe chase clearance; good vapor barrier	a-1181

It is recommended that all exterior masonry walls be furred. Asphaltic or bituminous bonding agents are not recommended as a plaster base. TRUSSTEEL Studs, ROCKLATH and plaster provide an exterior wall furring system that offers a maximum free space for encasement of pipes, ducts or conduits and a finished, readily decorated interior wall surface.

This construction consists of TRUSSTEEL Studs as vertical members braced with horizontal 3/4" channels. A channel at the mid-point between the floor and ceiling is attached to the wall with USG Adjustable Wall Furring Brackets not more than 32" o.c. horizontally. TRUSSTEEL Studs spaced 16" o.c. are wire-tied to these horizontal channels. 3/8" Insulating ROCKLATH, 16" x 96", is clipped to the TRUSSTEEL Studs and plastered to 1/2" grounds. The Adjustable Wall Furring Brackets and extra channel at mid-height may be omitted to obtain free-standing furring.

TRUSSTEEL stud size	maximum height ¹	
	braced furring	free-standing furring
1 3/8"	9'	6'
2 1/2"	15'	10'
3 3/4"	21'	14'
4"	22'	15'
6"	26'	17'

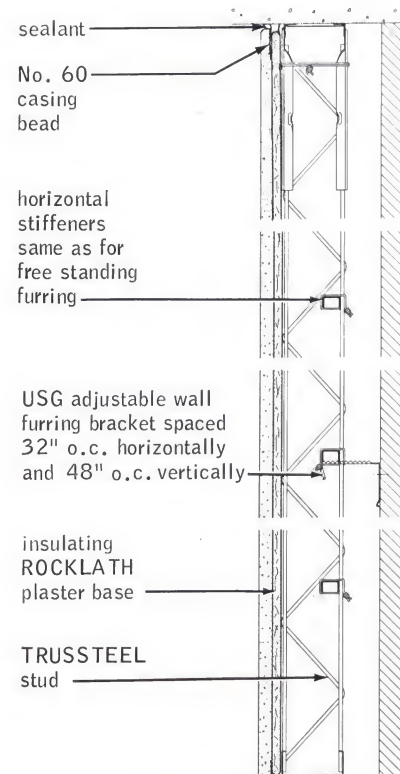
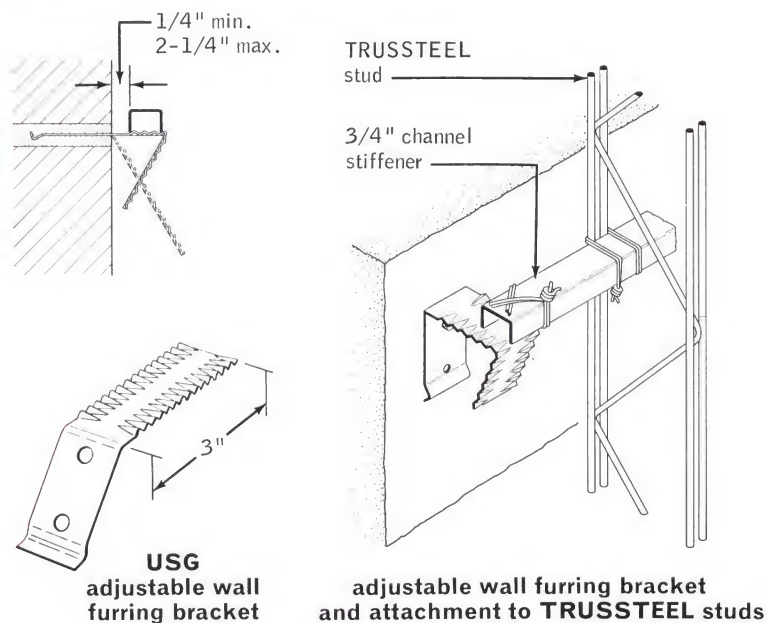
(1) Based on 16" spacing between studs.



free standing furring

adjustable wall furring brackets

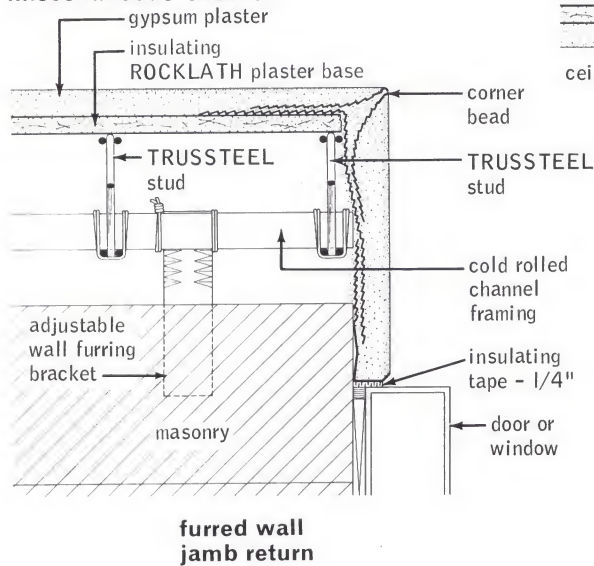
1. Attach wall furring brackets not more than 32" o.c. horizontally and 48" o.c. vertically.
2. After attachment, bend bracket to horizontal position.
3. Wire-tie plumbed channel to bracket 1/4" min. (2 1/4" max.) from wall.
4. Bend excess of bracket down.



braced furring

details/specifications

miscellaneous details



limitations (continued from page 1)

1. A non-load bearing partition.
2. Stud spacing limited to 16" o.c. (See table below for limiting heights.)
3. Door frames must be fabricated and anchored to prevent twisting and impact vibration (see details, page 7).
4. To retain maximum sound isolation, precautions must be taken to prevent sound leakage (see Specifications).
5. Where mechanically suspended acoustical tile ceilings are used, finished partitions should extend from structural slab to structural slab, closing all openings.
6. Resiliently attached gypsum lath and plaster should be applied to only one side of TRUSSTEEL Stud.

finished partition thickness—limiting heights

stud width	section modulus	direct attach.	resil. attach.	max. partition heights studs 16" o.c. (2)
1 5/8"	.0635" ³	3 5/8"	(1)	9'
2 1/2"	.1056" ³	4 1/2"	4 3/4"	15'
3 3/4"	.1420" ³	5 1/4"	5 1/2"	21'
4"	.1825" ³	6"	6 1/4"	22'
6"	.277" ³	8"	8 1/4"	26'

(1) Not recommended for resilient attachment. (2) Resilient partition limiting height is 10'.

specifications

notes to architect

1. 16" x 96" ROCKLATH Plaster Base is preferred on all TRUSSTEEL Stud installations, and particularly over door frames or other openings.

2. All fire-rated partitions require that TRUSSTEEL Studs be attached to TRUSSTEEL or Snap-In Runner Track with TRUSSTEEL Stud Shoes at the ceiling.

3. TRUSSTEEL Snap-In Runner Track with studs cut accurately to lengths may be used for floor and ceiling attachment where the construction is non fire-rated. This track may be used at the floor on fire-rated partitions.

4. Metal door and borrowed-light frame material should be at least 16-ga. steel, shop primed, with throats accurately formed to overall thickness of partition. They should be anchored at floor with 14-ga. steel plates welded to trim flanges, with provision for two power-driven anchors or equal per plate. Four jamb anchor inserts should be provided in each jamb, welded to the trim returns.

Grouting and additional reinforcement at the jamb are recommended for all door frames and are required for heavy (over 50 lbs. with hardware) or oversize doors which also require use of door closers and bumpers. Grout should be raked out to allow insertion of lath and plaster into frame; lath and plaster must not terminate against trim.

5. Lath and plaster surfaces should be isolated with control joints or other means where: (a) partition abuts a structural element (except floor) or dissimilar wall or ceiling; (b) construction changes within the plane of the partition; (c) partition run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.

6. Penetrations of the lath and plaster diaphragm, such as door frames and borrowed-light openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

sound transmission loss—db

test no.	method	band center frequency—Hz																				STC	
		125	160	175	200	250	315	350	400	500	630	700	800	1000	1250	1400	1600	2000	2500	2800	3150		4000
USG-125FT-G&H	Lab	35	—	49	—	49	—	52	—	56	—	56	—	59	—	49	—	48	—	54	—	60	49
KSO-1090072-b	Field	35	—	37	—	46	—	46	—	49	—	53	—	55	—	47	—	47	—	54	—	60	47
		34	37	—	40	46	46	—	44	48	52	—	53	55	47	—	42	47	51	—	56	60	46
TL-69-14	Lab	28	31	—	35	38	41	—	44	48	51	—	54	55	51	—	42	42	47	—	50	54	46
GA-2-3-4-FT-G&H	Lab	39	—	49	—	49	—	53	—	57	—	56	—	54	—	50	—	58	—	61	—	63	50
CK-664-38	Lab	36	44	—	47	48	49	—	50	50	50	—	51	52	51	—	50	52	53	—	55	56	52

7. Where a plaster surface is flush with metal, metal bucks, metal windows, or metal base, the plaster should be grooved between the two materials.

8. **Fixture Attachment**—Lightweight fixtures and trim should be installed using plastic plugs or other expandable anchors for screw attachment. Heavy fixture attachment is not recommended on resilient lath and plaster surfaces.

Wood inserts for fixture attachment on non-resilient surfaces must always be wire-tied to inside of stud chords to prevent breaking up stress skin of lath and plaster.

9. **Ceramic Tile**—Where required, ceramic tile may be installed: (a) by changing plaster base from ROCKLATH to Metal lath (see separate U.S.G. System Folder); (b) by adhesive application over level brown coat gypsum plaster in accordance with adhesive manufacturer's specifications.

10. Where these partitions are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs, such as at electrical boxes, and at the perimeter of the partition. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. Use sand aggregate only. Door and borrowed-light openings are not recommended in sound control partitions.

11. Zinc alloy accessories are recommended where corrosion due to high humidity or saline content of aggregate is possible.

12. See U.S.G. product folders in this series: Gypsum Plasters Folder for Plaster Specifications; Plaster Bases & Accessories Folder for General Lathing Specifications; Paint Products Folder for Paint Specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 **scope**—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3. delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

In cold weather, all glazing shall be completed and the building heated to a minimum of 55°F. Before lathing, ventilation shall be provided to carry off excess moisture.

Part 2: products

2.1 materials

- a. TRUSSTEEL Runner Track — widths 1½", 2½", 3¼", 4", or 6" (see Note 2, page 10).
- b. TRUSSTEEL Snap-In Runner Track—widths 1½", 2½", 3¼", or 4" (see Note 3, page 10).
- c. TRUSSTEEL Studs—widths 1½", 2½", 3¼", 4", or 6" (see Note 3, page 10).
- d. TRUSSTEEL Stud Shoes.
- e. R-SF Resilient Starter—Finisher Clip.
- f. TRUS-LOK* Drive-in Starter Clip.
- g. TR-1 Resilient Field Clip.
- h. TL-1 TRUS-LOK Field Clip.

- i. BRIDJOINT* B-1 Field Clip.
- j. USG Corner Bead (specify style from page 2).
- k. USG Self-Furring Junior Diamond Mesh Metal Lath.
- l. USG Cornerite (2" x 2") (3" x 3").
- m. USG Striplath.
- n. USG Casing Bead (specify type from page 2).
- o. USG Base Screed (specify type from page 2).
- p. USG 8-A Picture Mould.
- q. USG Adjustable Wall Furring Bracket.
- r. USG Cold Rolled Channels ¾", 1½", 2".
- s. 18 ga. tie wire.
- t. ROCKLATH Plaster Base shall be (¾" x 16" x 48") (¾" x 16" x 96") (regular) (perforated) (insulating).
- u. THERMAFIBER Sound Attenuation Blankets (1") (2") x 24" x 48".
- v. USG Control Joint.
- w. USG Acoustical Sealant.

Part 3: execution

3.1 stud system erection

Install TRUSSTEEL Studs of the size shown on the plans or as herein specified, spaced max. 16" o.c. Accurately align all partitions according to the partition layouts.

Securely attach runner tracks:

1. **To concrete slabs**—Using concrete stud nails or power-driven anchors, spaced max. 24" o.c.
2. **To ceiling grillage**—Wire tie, using a double strand of 18-ga. tie wire, spaced max. 24" o.c.
3. **To plaster or gypsum base**—Toggle bolt or wire tie, spaced max. 24" o.c.

Place studs, cut to nominal ceiling height, vertically into and resting upon floor runner track. Top of studs can be no more than ⅜" from ceiling with Snap-In Track; no more than 3" from ceiling with TRUSSTEEL Runner Track.

Secure studs to Snap-In Track by twisting until studs engage notches in both floor and ceiling tracks; to TRUSSTEEL Runner Track with TRUSSTEEL Stud Shoes, crimped or wire tied with double-strand 18-ga. wire.

Secure studs immediately adjacent to door and borrowed light frames with two wire ties of double-strand 18-ga. wire.

3.2 wall furring erection

On partitions designated as vertical furring, bridge back chord of TRUSSTEEL Stud using continuous ¾" channels at third points or not to exceed 48" o.c. and at mid-height. Saddle-tie channels to each stud.

On braced furring, securely attach mid-point bridging channel to masonry back-up with USG Adjustable Wall Furring Brackets 32" o.c.

Install USG Adjustable Wall Furring Brackets with crimped edges up, using (one 2" cut nail in mortar joints of brick, clay tile, or concrete block or in field of lightweight aggregate blocks) (⅝" concrete stud nails or power-driven nails or other suitable fasteners in monolithic concrete) driven through top hole of bracket. Apply brackets to masonry walls at mid-height of furred wall and spaced not over 4" from columns or other abutting construction and not over 32" o.c. horizontally and 48" o.c. vertically, and as required above and below windows. Lay mid-height furring channel horizontally on furring brackets with legs down, and wire-tie to bracket with double-strand 18-ga. tie wire. Bend excess bracket length down.

3.3 door frames

Insert studs into steel door frame engaging notches of jamb anchor clips, and securely wire tie each chord of stud to each jamb anchor. Install second stud each side of door frame, approximately 2" from strut stud.

Install two 3/4" cold rolled channels over head of door, extending out to engage third stud on each side. For heavy oversize doors, install additional horizontal reinforcing channels in pairs each side of door jamb and position 8" from head and floor and at mid-height. Securely tie these aligning channels to inside of stud chord at each intersection.

3.4 direct plaster base attachment

Apply ROCKLATH (Plain) (Perforated) starting at bottom with long dimension at right angles to studs. Butt lath together and clip in place using (TRUS-LOK Starter Clips TL-2) (Drive-in Clips) and TRUS-LOK Field Clips TL-1, spaced not to exceed 16" o.c. Fasten finishing course of ROCKLATH with 1" #12 flat head self-tapping sheet metal screws driven between vertical stud wires and spaced 8" from ceiling. Stagger end joints of lath between studs and align using BRIDJOINT B-1 Field Clips at all lath corners. Cut lath accurately and fit neatly around all electrical outlets, openings, etc.

3.5 resilient plaster base attachment

Apply ROCKLATH (Plain) (Perforated) starting at bottom with long dimension at right angles to studs. Butt lath together and

resiliently clip in place using Resilient Starter-Finisher Clip R-SF and Resilient Field Clip TR-1, spaced max. 16" o.c. Stagger end joints of lath between studs and align using BRIDJOINT B-1 Field Clips at all lath corners. Cut lath accurately and fit neatly around all electrical outlets, openings, etc.

3.6 accessory application

a. Cornerite—Install in all interior plaster angles. Staple at the edges.

b. Metal Corner Bead—Provide on all external plaster corners in single lengths whenever possible. Fasten securely with galvanized staples, spaced max. 8" o.c.; stagger in two wings.

c. Casing Bead—Install where indicated to provide full plaster grounds. Cut and miter ends accurately. Staple in place.

d. Reinforcing—Install a strip of self-furring diamond mesh lath over joints between dissimilar plaster bases. At all openings, reinforce corners by attaching a 6" x 12" piece of self-furring diamond mesh lath across corners. Staple in place.

e. Base Screed—Install 6" above finish floor unless otherwise indicated. Set screeds level, true to line, in lengths as long as practical, with joints aligned with a suitable splice. Staple in place.

f. Control Joint—Provide as detailed and where indicated. Staple in place.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (metal products); ROCKLATH, FIRECODE (plaster base); TRUSSTEEL (metal studs); BRACE-TITE, BRIDJOINT, TRUS-LOK (metal clips); THERMAFIBER (insulation products).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Met Stud—Gypsum Lath & Plaster—2½" USG studs 24" o.c.—2" THERMAFIBER sound atten blkts—¾" perf ROCKLATH screw att—½" gypsum sand plaster wt 13 width 4¼"	T-1974-OSU (f) TL-63-268 (s)		38	141		a-1191
1 hr. est	Met Stud—Gypsum Lath & Plaster—2½" USG studs 16" o.c.—¾" ROCKLATH—MS-1 clips both sides—½" 100:2½ gypsum sand plaster—perim caulked wt 14 width 4¼"	CK-664-17 (s)		45	125		a-1191
1 hr. est	Met Stud—Gypsum Lath & Plaster—2½" USG studs 16" o.c.—¾" ROCKLATH—MS-1 clips both sides—1" THERMAFIBER sound atten blkts—½" 100:2½ gypsum sand plaster—perim caulked wt 15 width 4¼"	CK-664-18 (s)		49	138		a-1191

wall furring applications

—	¾" USG Metal Studs 16" o.c., ¾" Insulating ROCKLATH screw attached, ½" basecoat plaster, lime putty finish (free standing furring)	—	—	—	175	Has pipe chase clearance; 9' limiting height; good vapor barrier	a-1191
—	USG Metal Furring Channels 24" o.c., ¾" Insulating ROCKLATH screw attached, ½" sanded basecoat plaster, lime putty finish	—	—	—	140	Does not isolate surface from structural stresses. No limiting height	a-1191

description

This incombustible non-load bearing partition assembly consists of ROCKLATH Plaster Base, either plain or perforated types, attached to lightweight steel channel studs. The USG® Metal Studs, roll-formed in five stud widths (see table at right) from galvanized steel, have punched holes to facilitate electrical installation. Studs, set in steel runner track at the floor and ceiling, are screw-attached or rapidly pierced and crimp-locked in place using the USG Metal Lock Fastener. The ROCKLATH Plaster Base is clip-attached or screw-attached using specially designed MS-1 clips or power-driven, self-drilling steel screws. Stud spacing is 16" o.c. for regular two-coat plaster application. Stud spacing may be 24" o.c. for the screw attachment system but requires 3-coat plaster application for this wider stud spacing.

ROCKLATH, a gypsum core faced on both sides with special paper, forms a rigid base for the economical application of gypsum plasters. For this assembly, ROCKLATH is ¾" thick, available in two types (Perforated or Plain) and two sizes (see Specifications, page 7). In perforated ROCKLATH, ¾" round holes, punched through the lath 4" o.c. in each direction, provide a mechanical key for additional plaster bond.

With Insulating (foil-back) ROCKLATH Plaster Base screwed to USG Metal Studs or Metal Furring Channels, the construction provides an excellent vapor barrier and offers significant insulating value as exterior wall furring (see details, page 6).

function and utility

This assembly provides a simple, easy-to-erect, incombustible, non-load bearing assembly. The stud construction allows vertical chaseways for pipes, conduits and ducts, with some horizontal chaseways through web cutouts.

Fire Resistance—All components are incombustible; 1-hour fire rating available (see table above).

Sound Isolation—Up to 49 STC at low cost (see table above).

Lightweight—Partition has a dead load of approx. 13 psf.

Strength—This assembly with studs spaced 24" o.c. provides adequate strength for normal partition usage.

Economical—Low material costs, speed of erection and versatility of the system provide a cost comparable to or lower than wood frame construction.

limitations

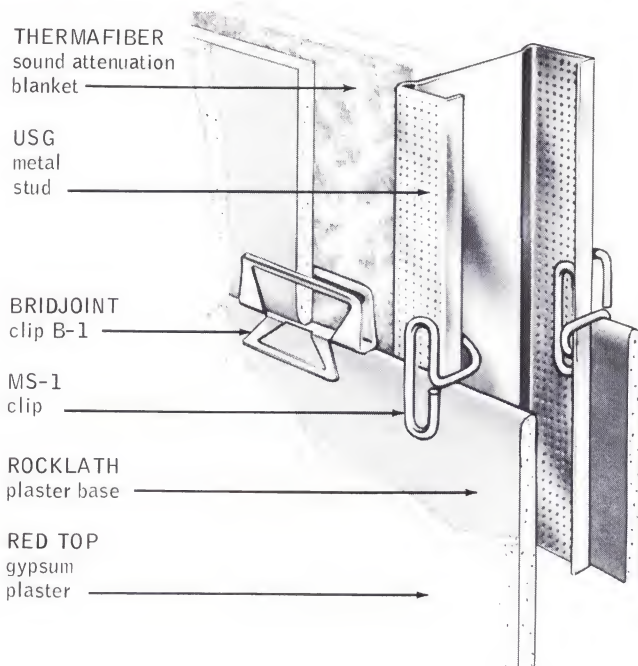
1. A non-load bearing partition.

2. Limiting heights of the partition must be reduced by 15% if a lightweight aggregate basecoat is used.
3. Plaster must be applied by the 3-coat method (see USG Folder on Gypsum Plasters) when 24" stud spacing or perforated lath is used.

partition thickness—limiting heights

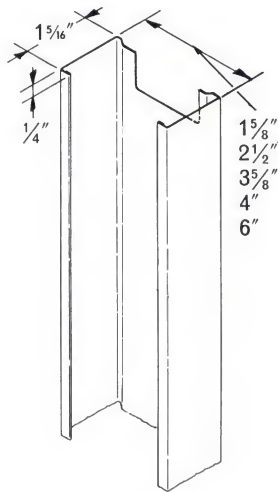
stud width	section modulus	partition thickness	maximum partition height (1) (2)
1½"	.049"³	3¾"	10'-0"
2½"	.086"³	4¼"	13'-6"
3½"	.142"³	5¾"	17'-0"
4"	.156"³	5¾"	18'-0"
6"	.329"³	6¾"	18'-0"

(1) Reduce ceiling height by 15% if lightweight aggregate basecoat is used. (2) For 16" stud spacing. Corresponding limiting heights for 24" stud spacing are 9', 12', 16' and 17'3".

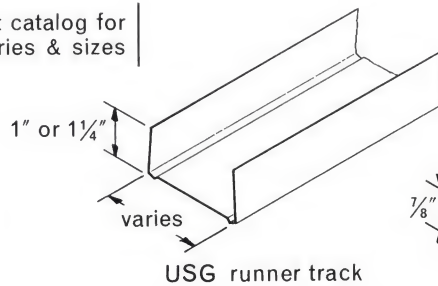


components

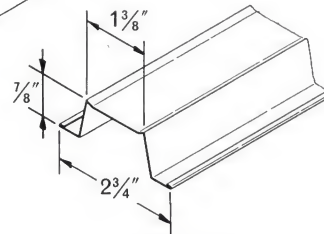
see "plaster bases" product catalog for full description on accessories & sizes



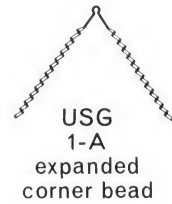
standard
USG metal stud



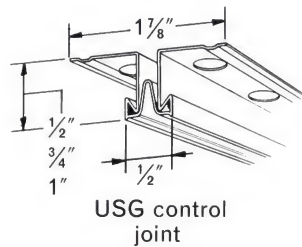
USG runner track



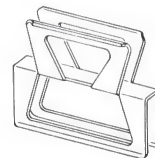
USG metal
furring channel



USG
1-A
expanded
corner bead



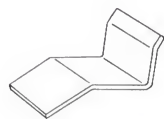
USG control
joint



BRIDJOINT B-1
field clip



USG
4-R
expanded
flange
corner bead



TRUS-LOK *
drive-in
starter clip



USG
MS-1 clip

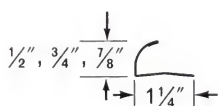


1/8" USG brand
screw—type S

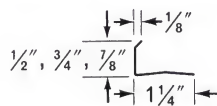


USG
4A
flexible
corner bead

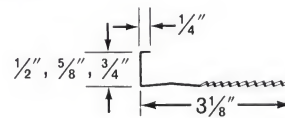
USG casing beads (expanded or short flange)



#4 or #138 quarter round



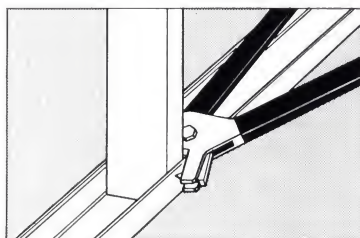
#60 semi-square



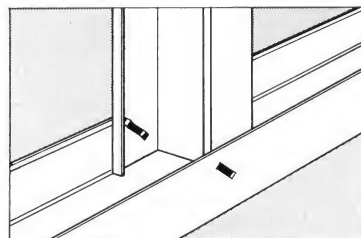
#66 square-edge



USG
cornerite



pierces & folds light metal



positive & permanent lock

USG metal lock fastener

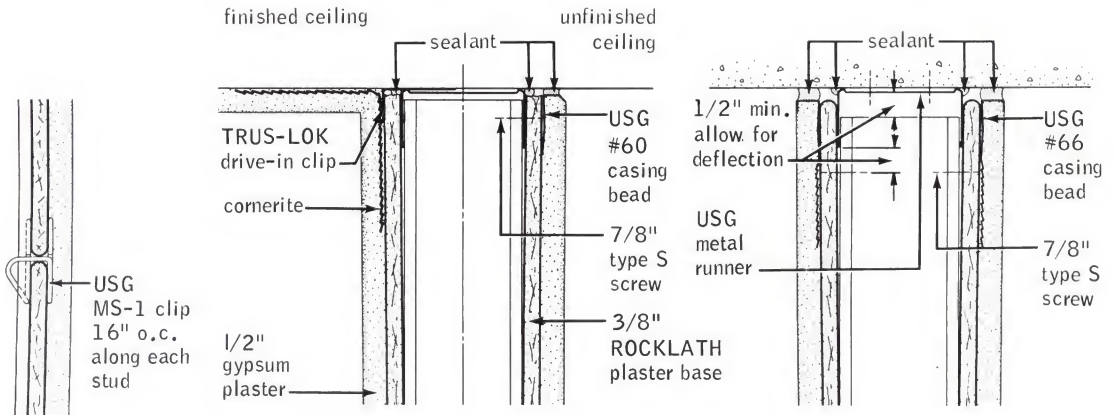
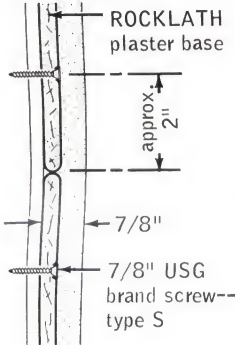
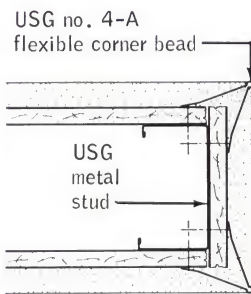


USG
10-A
expanded
bull nose
corner bead

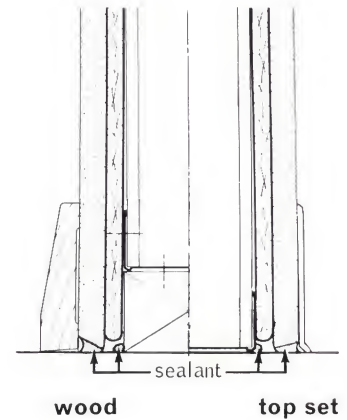
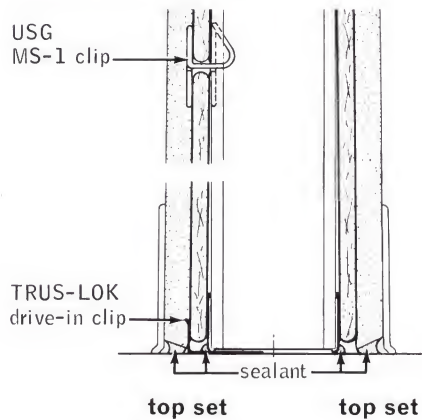
details

scale: 3" = 1'-0"

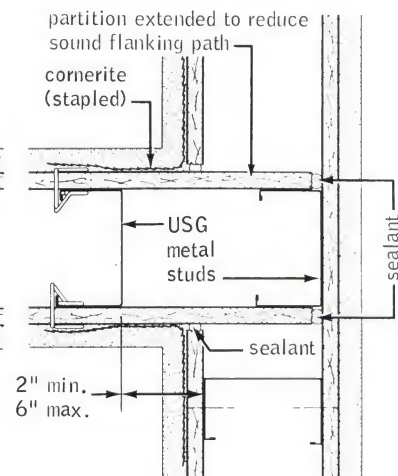
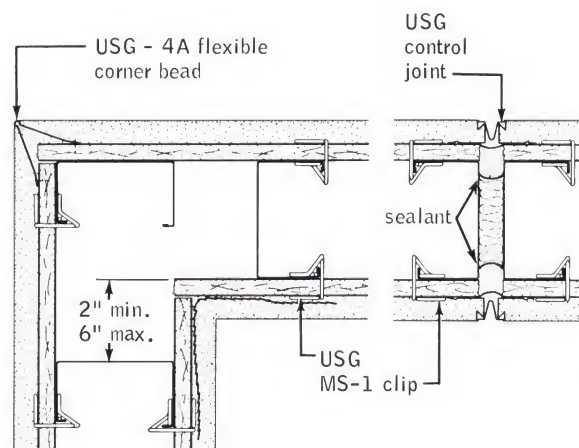
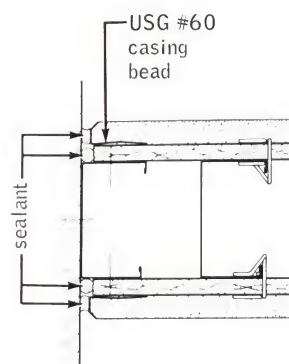
ceiling attachments

ROCKLATH
edge jointpartition
terminal

floor attachments



wall plan sections

wall
intersection

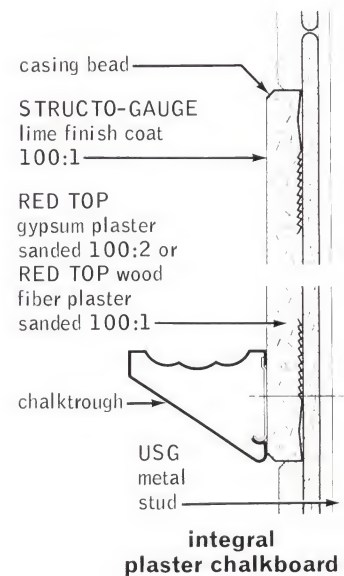
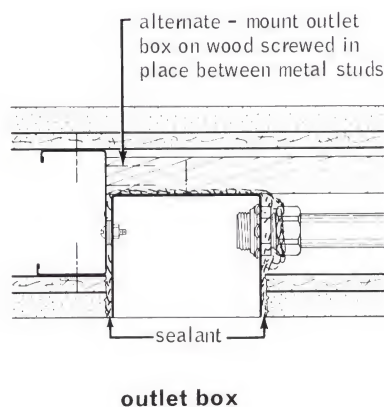
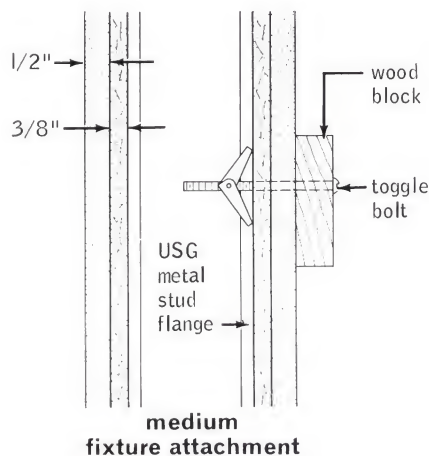
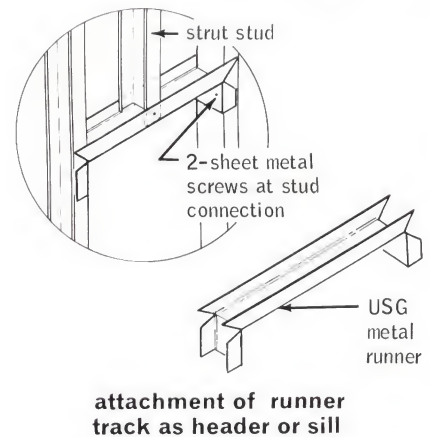
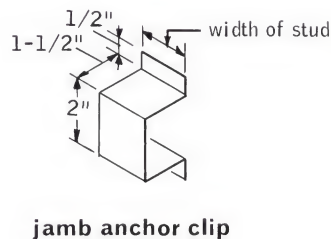
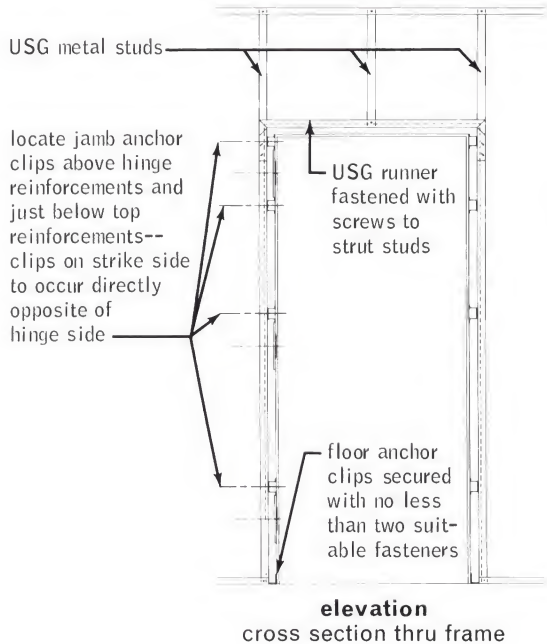
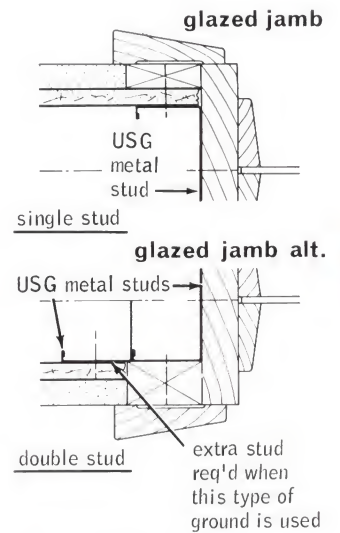
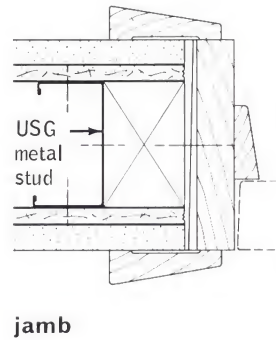
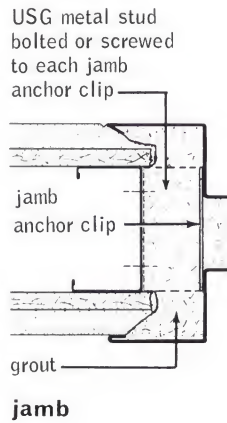
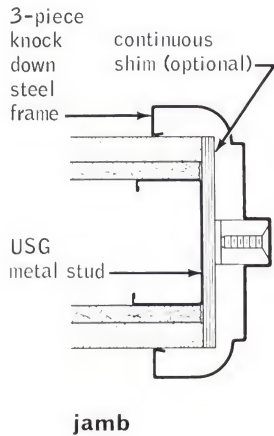
corner

wall
control joint

partition intersection

details

scale: 3" = 1'-0"

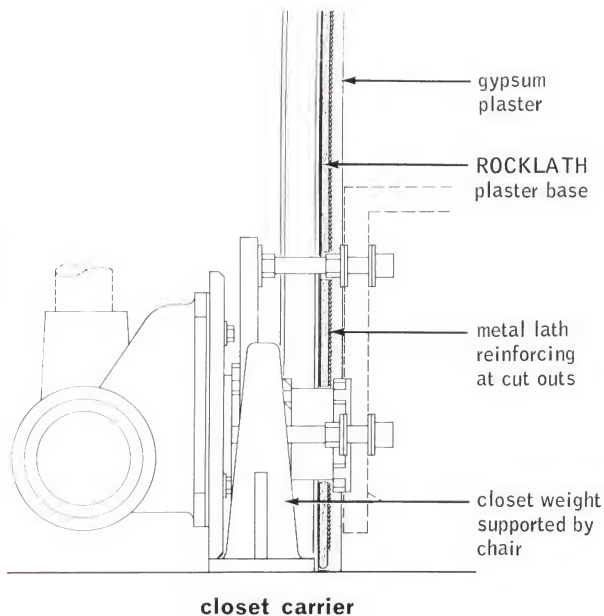


details

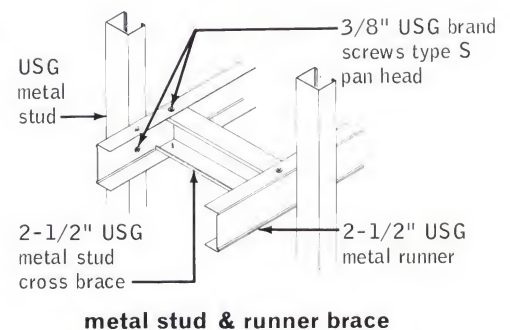
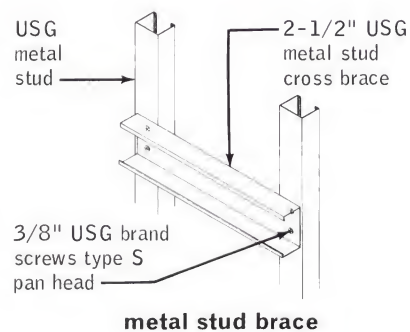
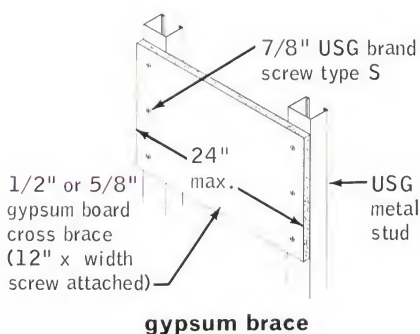
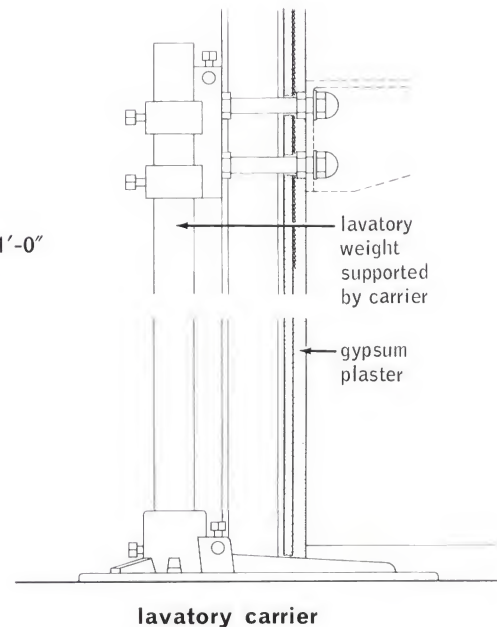
core walls

Core walls, as vertical shafts encasing the usual plumbing supply and wastelines, vent ducts and electrical conduits, require more free space than can be provided within the usual partition assembly.

The Metal Stud core wall may be formed of two USG Studs bracketed together with 12" x chase width gussets of $\frac{3}{8}$ " ROCKLATH plaster base (see detail). Gussets should be spaced not to exceed 48" o.c. and securely attached to USG Studs using three $\frac{7}{8}$ " type S screws. As an alternate, 2½" metal stud cross braces screw-attached to core wall studs may be substituted for plaster base gussets. When core wall studs are not directly opposite, metal stud cross braces 24" o.c. are securely anchored to a continuous horizontal 2½" runner screw-attached to core wall studs within the cavity. Limiting height for this core wall is 16'.



scale: 1½'-1'-0"



details

scale: 3"=1'-0"
elevation-no scale

exterior wall furring

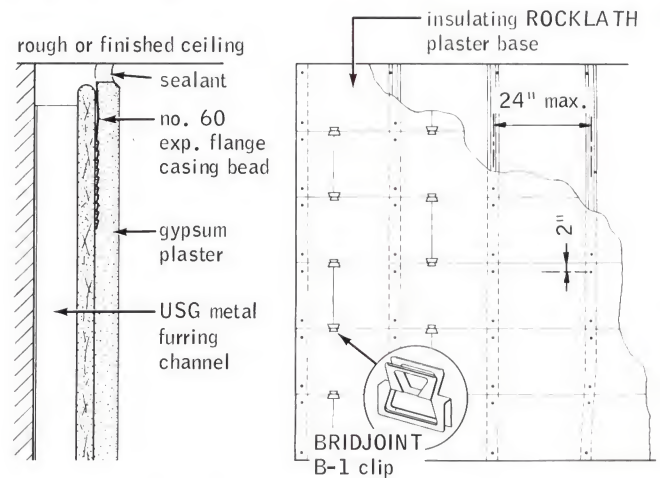
It is recommended that all exterior walls be furred. Asphaltic or bituminous bonding agents are not recommended as a plaster base. $\frac{3}{8}$ " square edge Long Length Insulating ROCKLATH and plaster may be used with three different framing methods to provide structural and economic advantages for special furring conditions.

Attached Furring—In this system Long Length Insulating ROCKLATH Plaster Base is screwed to USG Metal Furring Channels erected vertically 24" o.c. direct to unit masonry or monolithic concrete. Plaster is applied to $\frac{3}{4}$ " grounds by the 3-coat method. No limiting height.

Adjustable Furring—In this system Insulating ROCKLATH is furred out up to 3" with brackets and $\frac{3}{4}$ " channels to provide additional pipe chase capacity. Limiting height is 12'. See separate U.S.G. Technical Folder, Solid Plaster Systems, for details.

Free-Standing Furring—In this system $3\frac{5}{8}$ " USG Metal Studs are erected vertically 24" o.c. in floor and ceiling runner tracks. Insulating ROCKLATH Base is attached to the studs by special screws, and plaster is applied by the 3-coat method to $\frac{1}{2}$ " grounds. The assembly allows ample chase width for pipes, conduits or ducts. Limiting height is 8'6".

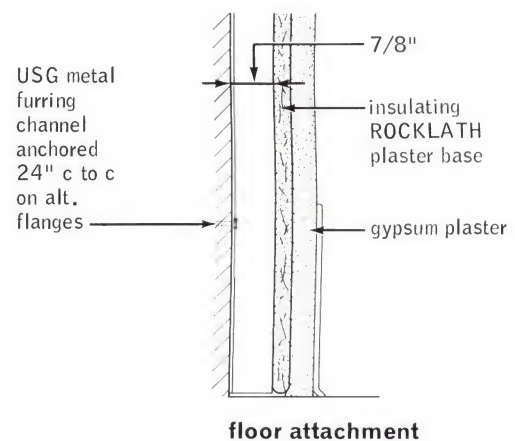
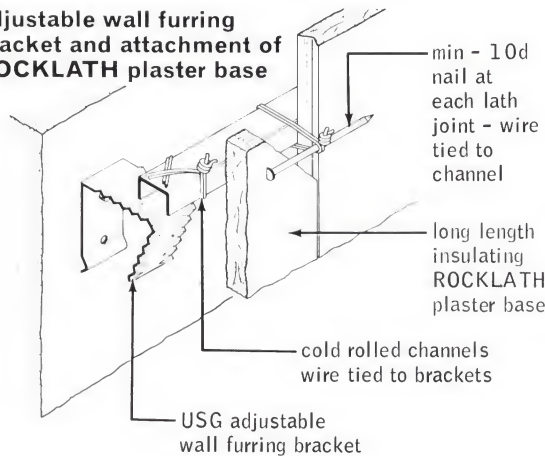
attached furring



ceiling attachment

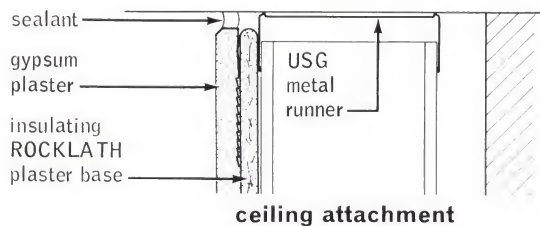
wall elevation—attached furring

adjustable wall furring bracket and attachment of ROCKLATH plaster base

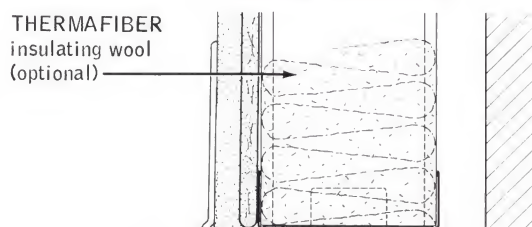


floor attachment

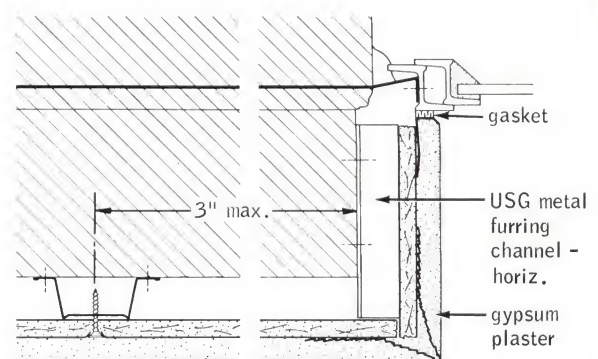
free standing furring



ceiling attachment



base attachment



metal window—jamb
furred wall plan section

specifications

notes to architect

1. Metal door and borrowed-light frame material should be at least 16-ga. steel, shop primed, with throats accurately formed to overall thickness of partition. They should be anchored at floor with 14-ga. steel plates welded to trim flanges, with provision for two power-driven anchors or equal per plate. Jamb anchor and core centering clips should be 18-ga. steel welded in jamb and head (see details). Studs are screw-attached to jamb anchor clips.

Grouting is recommended for all door frames and is required for heavy (over 50 lbs. with hardware) or oversize doors which also require use of door closers and bumpers. Grout should be raked out to allow insertion of lath and plaster into frame; lath and plaster must not terminate against trim.

2. Lath and plaster surfaces should be isolated with control joints or other means where: (a) partition abuts a structural element (except floor) or dissimilar wall or ceiling; (b) construction changes within the plane of the partition; (c) partition run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.

3. Penetrations of the lath and plaster diaphragm, such as door frames and borrowed-light openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

4. Where a plaster surface is flush with metal, metal bucks, metal windows, or metal base, the plaster should be grooved between the two materials.

5. **Fixture Attachment**—Lightweight fixtures and trim should be installed by drilling set dry plaster to a minimum depth of $\frac{3}{4}$ " and inserting a plastic plug or other expandable anchor for anchorage of attachment screws. Wood or metal mounting strips for cabinets and shelving should be toggle bolted through lath and plaster, locating fasteners as near studs as possible.

6. **Ceramic Tile**—(Where portland cement plaster base for ceramic tile is specified, self-furring diamond mesh metal lath should be applied over ROCKLATH plaster base with staples, spaced approximately 8" o.c. horizontally and vertically, and portland cement-lime plaster applied in scratch and brown coats to $\frac{5}{8}$ " grounds over metal lath as ceramic tile base.) (Ceramic tile may be adhesively applied over finished gypsum plaster in accordance with adhesive manufacturer's specifications.)

7. Where these partitions are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs, such as at electrical boxes, and at the perimeter of the partition. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. Use sand aggregate only. Door and borrowed-light openings are not recommended in sound control partitions.

8. Zinc alloy accessories are recommended where corrosion due to high humidity or saline content of aggregate is possible.

9. See U.S.G. product folders in this series: Gypsum Plasters Folder for Plaster Specifications; Plaster Bases & Accessories Folder for General Lathing Specifications; Paint Products Folder for Paint Specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 **scope**—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its latest printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

In cold weather, all glazing shall be complete and the building heated to a minimum of 55°F. Before lathing, ventilation shall be provided to carry off excess moisture.

Part 2: products

2.1 materials

- a. Regular or Perforated ROCKLATH Plaster Base ($\frac{3}{8}$ "x16"x48") ($\frac{3}{8}$ "x16"x96") for metal stud partition; $\frac{3}{8}$ " Insulating ROCKLATH, 16"x96" for exterior wall furring.
- b. USG Metal Studs (1 $\frac{5}{8}$ ", 2 $\frac{1}{2}$ ", 3 $\frac{5}{8}$ ", 4", 6"); lengths as required.
- c. USG Metal Runner for (1 $\frac{5}{8}$ ", 2 $\frac{1}{2}$ ", 3 $\frac{5}{8}$ ", 4", 6") USG Metal Studs.
- d. $\frac{7}{8}$ " USG Brand Screws Type S.
- e. BRIDJOINT* B-1 Field Clips for $\frac{3}{8}$ " ROCKLATH.
- f. USG Cornerite (2"x2") (3"x3").
- g. USG Striplath.
- h. USG Self-Furring Junior Diamond Mesh Metal Lath.
- i. USG Corner Bead (specify type from page 2).
- j. USG Casing Bead (specify type from page 2).
- k. USG MS-1 Clip.
- l. TRUS-LOK Drive-in Starter Clip.
- m. USG Control Joint.
- n. USG Acoustical Sealant.
- o. THERMAFIBER* Sound Attenuation Blanket.

Part 3: execution

3.1 stud system installation

Accurately align USG Metal Runner at floor and ceiling according to partition layout. Attach runners as follows: (1) to concrete slabs using concrete stud nails or power-driven anchors, spaced max. 24" o.c.; (2) to ceiling grillage using wire ties of double strand 18-ga. tie wire, spaced max. 16" o.c.; (3) to plaster or gypsum lath using toggle or molly bolts, spaced max. 24" o.c.

Position USG Metal Studs vertically, engaging both floor and ceiling runners, and spaced max. (16") (24") o.c. Place a stud not more than 2" from each abutting partition, internal corner, partition terminal, and other similar locations.

Make splices by nesting two studs, lapped a min. 8", and anchored together with two screws in each flange.

3.2 door frame installation

Insert studs into steel door frame, accurately centered against anchor clips. Attach to clips using screws or bolts. Where heavy doors are used, grout frame in place.

Over metal door frames, place a cut-to-length section of runner track, with a web-flange bend at each end, horizontally and secure with one positive attachment per flange. Position a cut-to-length stud (extending to the ceiling runner) at the location of vertical joints over door frame header.

3.3 plaster base installation

Apply ROCKLATH Plaster Base, bottom course first, with face out, long dimension at right angles to studs and all joints butted together. Cut lath to fit neatly around all electrical outlets, openings, etc. Place end joints between studs, staggered in

successive courses. Align and support ends of lath with BRIDJOINT B-1 Clips at top, center and bottom of each butt joint. Secure lath tightly in place at floor and ceiling with TRUS-LOK Drive-in Starter Clip spaced 16" o.c.

For clip attachment, use one MS-1 Clip at every intersection of lath edges and studs.

For screw attachment, use two $\frac{7}{8}$ " type S screws per stud, each located 2" from lath edge.

3.4 wall furring installation

Position USG Metal Furring Channels vertically, spaced max. 24" o.c. Attach to masonry or concrete surfaces with power-driven anchors or concrete stub nails spaced 24" o.c. and staggered on opposite furring channel flanges. Make splices by nesting channels at least 8" and securely anchoring to masonry with two fasteners in each flange.

Apply Insulating ROCKLATH Plaster Base face out with long dimension at right angles to furring channels and all joints butted together. Cut lath to fit neatly around all openings. Stagger end joints in successive courses. Screw-attach lath ends

that abut over channel webs; align and support lath ends that abut between channels with BRIDJOINT B-1 Field Clips. Attach lath to each furring channel with two $\frac{7}{8}$ " type S screws, each located 2" from lath edge.

3.5 accessory application

a. Cornerite—Install in all interior plaster angles. Staple at edges.

b. Corner Bead—Provide on all external plaster corners in single lengths wherever possible. Fasten securely with galvanized staples, etc., spaced max. 8" o.c.; stagger in two wings.

c. Casing Bead—Install where indicated. Accurately cut and miter ends. Position and securely attach to provide full plaster grounds.

d. Reinforcing—Install a strip of self-furring diamond mesh lath over joints between dissimilar plaster bases. At all openings, reinforce corners by attaching a 6"x12" piece of diamond mesh lath diagonally across corners.

e. Control Joint—Staple in place where indicated.

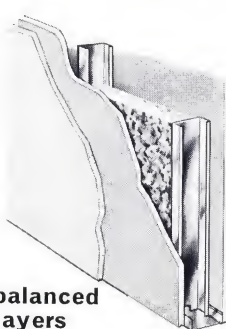
TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (metal products); ROCKLATH (plaster base); THERMAFIBER (insulation products); BRIDJOINT, TRUS-LOK (metal clips); STRUCTO-GAUGE, RED TOP (plaster).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

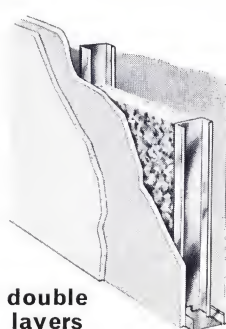
fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Met Stud— $\frac{1}{2}$ " SHEETROCK FIRECODE "C" gypsum wallbd— $\frac{1}{2}$ " USG studs 24" o.c.—single layer wallbd ea side appl vert & screw att— $\frac{1}{2}$ " THERMAFIBER sound atten blkts one side—joints fin—perimeter caulked wt 5 width $\frac{3}{2}$ "	T-3362-OSU (f) TL-69-42 (s) TL-65-158 (s)		45 48	138	TL-65-158 based on $\frac{3}{8}$ " studs & 1" wool thickness	a-1201
1 hr. est	Met Stud— $\frac{3}{8}$ " SHEETROCK FIRECODE gypsum wallbd— $\frac{1}{2}$ " USG studs 24" o.c.— $\frac{1}{2}$ " THERMAFIBER sound atten blkts—2 layer—base layer $\frac{1}{4}$ " SHEETROCK wallbd screw att— $\frac{3}{8}$ " wallbd face layer screw att—joints fin—perimeter caulked wt 7 width $\frac{4}{4}$ "	CK-684-14 (s) CK-684-13 (s)		55 53	166 149	CK-684-13 based on $\frac{1}{2}$ " thick board	a-1201
1 hr. est	Met Stud— $\frac{1}{2}$ " SHEETROCK FIRECODE "C" gypsum wallbd— $\frac{1}{2}$ " USG studs 24" o.c.—single layer wallbd one side appl vert & screw att— $\frac{1}{2}$ " THERMAFIBER sound atten blkts one side—2 layers wallbd opp side appl vert & screw att—joints stag & fin—perimeter caulked wt 7 width 4"	TL-69-153 (s) TL-69-148 (s)		49 41	133	TL-69-148 based on same construction without wool	a-1201
1 hr.	Met Stud—2 layers $\frac{1}{2}$ " SHEETROCK gypsum wallbd ea side— $\frac{1}{8}$ " USG studs 24" o.c.—wallbd appl vert & screw att—joints stag & fin—perimeter caulked wt 9 width $\frac{3}{8}$ "	U of C 9-21-64 (f) CK-654-40 (s)		53	150	Sound test based on $\frac{2}{2}$ " studs & $\frac{1}{2}$ " wool thickness	a-1201
1 hr.	Met Stud— $\frac{3}{8}$ " SHEETROCK FIRECODE gypsum wallbd— $\frac{3}{8}$ " USG studs 24" o.c.—wallbd single layer vert or horiz appl & screw att 12" o.c.—joints fin—perimeter caulked wt 6 width $\frac{4}{4}$ "	T-1174-OSU (f) GA-WP-45-1 hr (f) USG-17-FT-G&H (s)			109	Basic 1-hr corridor—fire tests based on screws 8" o.c. at vert joints—WP-45 based on horiz appl	a-1201
1 hr.	Met Stud— $\frac{3}{8}$ " SHEETROCK FIRECODE gypsum wallbd— $\frac{1}{8}$ " USG studs 24" o.c.—wallbd single layer vert appl & screw att 12" o.c.—joints fin—perimeter caulked wt 5 width $\frac{2}{8}$ "	U of C 7-31-62 (f) TL-64-29 (s)		38	108	Min. 1-hr. drywall partn.—fire test based on screws 8" o.c. at vert. joints	a-1201
1 hr. est	Met stud— $\frac{1}{2}$ " SHEETROCK FIRECODE "C" gypsum wallbd— $\frac{3}{8}$ " USG studs 24" o.c.—wallbd single layer vert. appl & screw att— $\frac{1}{2}$ " THERMAFIBER sound atten blkts —joints fin—perimeter caulked wt 5 width 4"	TL-70-116 (s) TL-70-106 (s)		43 37	155	TL-70-106 based on same construction without wool	a-1201
2 hrs.	Met Stud—2 layers $\frac{1}{2}$ " SHEETROCK FIRECODE "C" gypsum wallbd ea side— $\frac{2}{2}$ " or $\frac{3}{8}$ " USG studs 24" o.c.—1", $\frac{1}{2}$ " or 2" THERMAFIBER sound atten blkts stapled —wallbd appl vert & joints stag—base layer screw att —face layer strip lamin or screw att—joints fin—perimeter caulked wt 10 width $\frac{4}{4}$ "	UL Des 28-2 hr (f) Field Test KSO-109006-a (s) USG-114-FT-G&H (s) CK-654-40 (s)	55 54	54 53	173	Best value of drywall metal stud party walls in 50-54 stc range. CK-654-40 based on screw-attached face layer	a-1201
2 hrs. est	Met Stud—2 layers $\frac{1}{2}$ " SHEETROCK FIRECODE "C" gypsum wallbd ea side—2" USG studs 24" o.c.—wallbd appl vert & screw att— $\frac{1}{2}$ " THERMAFIBER sound atten blkts—joints fin—perim caulked wt 9 width 4"	TL-69-159 (s) TL-69-155 (s)		52 45	173	TL-69-155 based on same construction without wool	a-1201
2 hrs. est	Met Stud— $\frac{3}{8}$ " SHEETROCK FIRECODE gypsum wallbd— $\frac{3}{8}$ " USG studs 24" o.c.—2 layer—base layer $\frac{1}{2}$ " USG min fiber sound dead bd ea side screw att—wallbd face layer lamin & screw att—joints stag & fin—perimeter caulked wt 8 width $\frac{5}{8}$ "	USG-103-FT-G&H (s) Field Test KSO-109006-b (s)	52 50	52	186		a-1201
2 hrs.	Met Stud—2 layers $\frac{3}{8}$ " SHEETROCK FIRECODE gypsum wallbd plain or vinyl faced vert appl ea side— $\frac{3}{8}$ " USG studs 24" o.c.—base layer screw att—face layer lamin or screw att—joints fin or unfin—perimeter caulked wt 12 width $\frac{6}{8}$ "	UL Des 11-2 hr (f) TL-60-113 (s)		46	157	Excellent for corridors	a-1201
2 hrs.	Met Stud—2 layers $\frac{1}{2}$ " SHEETROCK FIRECODE "C" gypsum wallbd— $\frac{1}{8}$ " USG studs 24" o.c.—2 layers ea side vert appl & screw att joints fin wt 9 width $\frac{3}{8}$ "	U of C 6-15-65 (f)		N/A	156	Most economical 2-hour metal stud drywall partition	a-1201
2 hrs. est	Met Stud Chase Wall—2 layers $\frac{1}{2}$ " SHEETROCK FIRECODE "C" gypsum wallbd ea side— $\frac{1}{8}$ " USG studs 24" o.c. in 2 rows spaced $\frac{6}{4}$ " apart— $\frac{1}{2}$ " wallbd gussets spanning chase att to studs at qtr points—wallbd appl vert & screw att— $\frac{1}{2}$ " THERMAFIBER sound atten blkts one side—joints stag & fin—perimeter caulked wt 11 width 12"	USG-134-FT-G&H (s)	55		189		a-1201



single layer



unbalanced layers



double layers



chase wall

description

description

These lightweight non-load bearing partition assemblies consist of steel channel studs, set in floor and ceiling runner tracks and faced each side with one or two layers of SHEETROCK® SW Gypsum Wallboard—a new product with exclusive eased-edge design that strengthens the joint and reduces imperfections in finishing. A specially designed self-tapping steel screw with a rust-inhibitive coating is used to attach the wallboard to the studs. The studs, available in eight widths, two types (see Specifications, page 9) and lengths to suit job requirements, have holes punched in the web to facilitate electrical installation. The partitions are completed with a U.S.G. joint system and DUR-A-BEAD® Corner Reinforcement.

SHEETROCK for these assemblies is available in three thicknesses and five types (see Specifications). In two-layer construction USG Mineral Fiber Sound Deadening Board or BAXBORD® Gypsum Backing Board may be used as a base layer. SHEETROCK FIRECODE® and FIRECODE "C" Gypsum Wallboard, with a specially formulated core, obtains higher fire ratings than plain SHEETROCK Wallboard (see table, page 1).

function and utility

Adaptable for use as party walls, corridor walls and interior partitions in virtually every type of new construction—commercial, institutional, industrial and residential—or alteration work for permanent space division. With single layer SHEETROCK, applied horizontally or vertically, the system offers very economical partitioning. With double-layer construction, excellent resistance to fire and sound transmission is available.

Fire Resistant—Constructed of incombustible components. Established fire ratings: 1 hour, with single-layer $\frac{5}{8}$ " SHEETROCK FIRECODE Wallboard; 2 hours, with double-layer $\frac{1}{2}$ " FIRECODE "C" or $\frac{5}{8}$ " FIRECODE Wallboard applied each side of USG Metal Studs.

Sound Isolation—STC ratings available up to 55 for double-layer, 42 for single-layer. Where greater sound isolation is desired for party walls, THERMAFIBER® Sound Attenuation Blankets are inserted in the stud cavity (see table, page 1).

Lightweight—With $3\frac{5}{8}$ " studs and single-layer $\frac{5}{8}$ " SHEETROCK applied each side, the partition weighs approx. 6 psf; with double-layer $\frac{1}{2}$ " FIRECODE "C" each side and $1\frac{5}{8}$ " studs, only 9 psf—making possible savings in structural requirements.

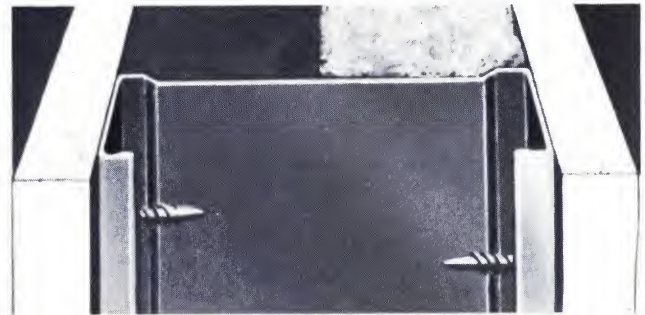
Economical—Low material cost and speed of erection provide realistic and competitive construction costs.

limitations

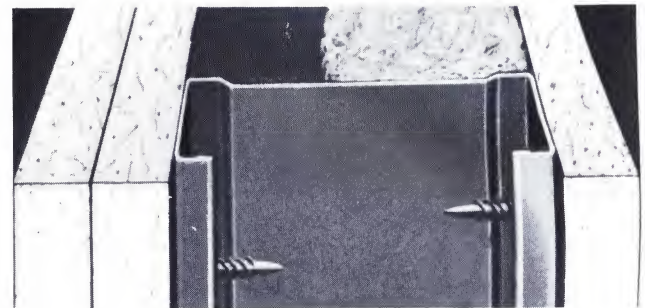
- (1) Non-load bearing.
- (2) The partitions should not be used where normally exposed to excessive moisture or humidity.
- (3) Maximum stud spacing is 24" o.c.

"series 4" partitions

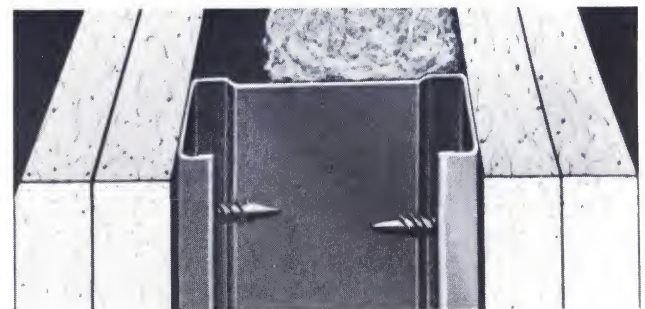
These new assemblies, of uniform 4" thickness, require one door frame, wallboard and insulating wool thickness throughout. Simplified design and installation in single-layer, double-layer and unbalanced construction are available to meet fire and sound requirements for party wall, corridor and divider partitions.



single layer



unbalanced layers

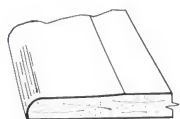


double layers

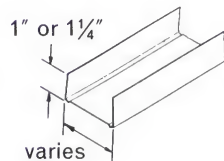
sound transmission loss—db

test no.	method	band center frequency—Hz																				STC	
		125	160	175	200	250	315	350	400	500	630	700	800	1000	1250	1400	1600	2000	2500	2800	3150		4000
CK-684-14	Lab	31	40	—	41	47	50	—	53	57	59	—	60	63	63	—	62	60	59	—	61	65	55
KSO-109006-a	Field	36	—	47	—	47	—	49	—	51	—	53	—	57	—	59	—	57	—	55	—	62	55
		36	41	—	48	47	46	—	50	51	52	—	54	57	58	—	58	57	55	—	57	62	54
USG-134-FT-G&H	Lab	33	—	43	—	48	—	49	—	56	—	57	—	60	—	60	—	63	—	60	—	60	55
USG-114-FT-G&H	Lab	32	—	39	—	44	—	48	—	55	—	56	—	57	—	59	—	62	—	58	—	56	54
CK-684-13	Lab	29	38	—	40	46	49	—	54	56	58	—	60	62	63	—	61	62	61	—	63	64	53
CK-654-40	Lab	36	35	—	37	43	47	—	51	54	55	—	57	56	56	—	59	58	58	—	56	58	53
TL-69-159	Lab	30	37	—	40	42	48	—	52	53	54	—	55	57	58	—	60	59	52	—	49	52	52
KSO-109006-b	Field	31	—	37	—	42	—	44	—	51	—	54	—	59	—	59	—	58	—	55	—	63	50
		31	32	—	39	42	42	—	47	51	52	—	56	59	59	—	59	58	56	—	58	63	52
USG-103-FT-G&H	Lab	34	—	36	—	44	—	46	—	52	—	56	—	57	—	60	—	53	—	53	—	55	52
TL-69-153	Lab	28	36	—	37	38	44	—	48	52	54	—	55	57	59	—	60	58	51	—	47	49	49
TL-65-158	Lab	27	29	—	35	37	40	—	43	48	52	—	53	52	54	—	55	54	49	—	44	47	48
TL-69-42	Lab	21	29	—	32	35	40	—	45	48	51	—	53	55	57	—	58	56	49	—	42	43	45
TL-69-155	Lab	22	29	—	31	33	37	—	42	45	48	—	51	52	54	—	55	52	46	—	45	49	45

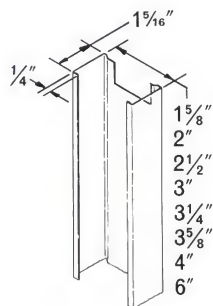
components/assemblies

SHEETROCK SW
gypsum wallboard

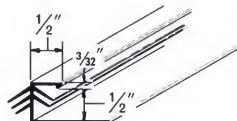
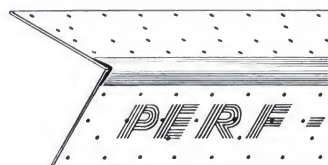
see "gypsum wallboard & joint treatment" product catalogs for full description on accessories



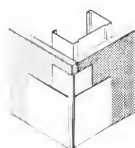
USG metal runner



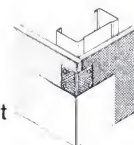
USG metal stud

P-1
vinyl trim

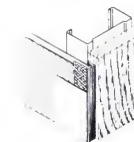
no. 100 PERF-A-BEAD* reinforcement



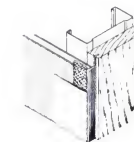
DUR-A-BEAD corner reinforcement



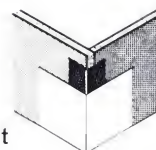
no. 200-A USG metal trim



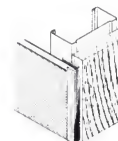
no. 200-C USG metal trim



no. 900 USG corner reinforcement



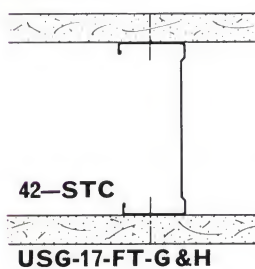
USG metal trim



sound-tested assemblies

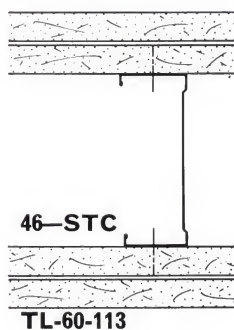
double layer

single layer



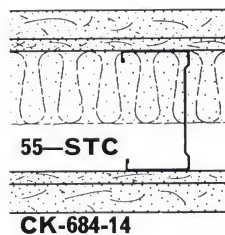
42-STC

USG-17-FT-G&H



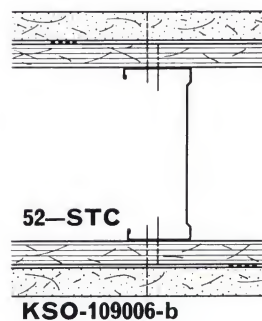
46-STC

TL-60-113



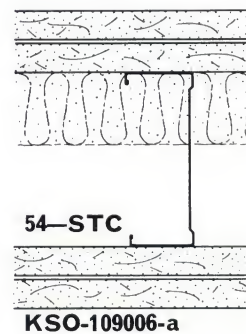
55-STC

CK-684-14



52-STC

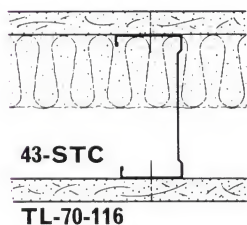
KSO-109006-b



54-STC

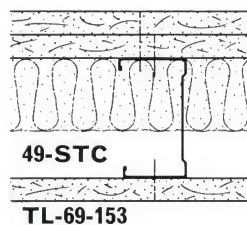
KSO-109006-a

"series 4" partitions



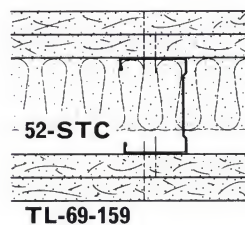
43-STC

TL-70-116



49-STC

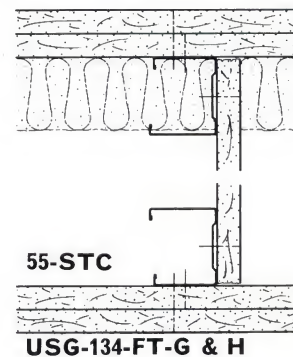
TL-69-153



52-STC

TL-69-159

chase wall



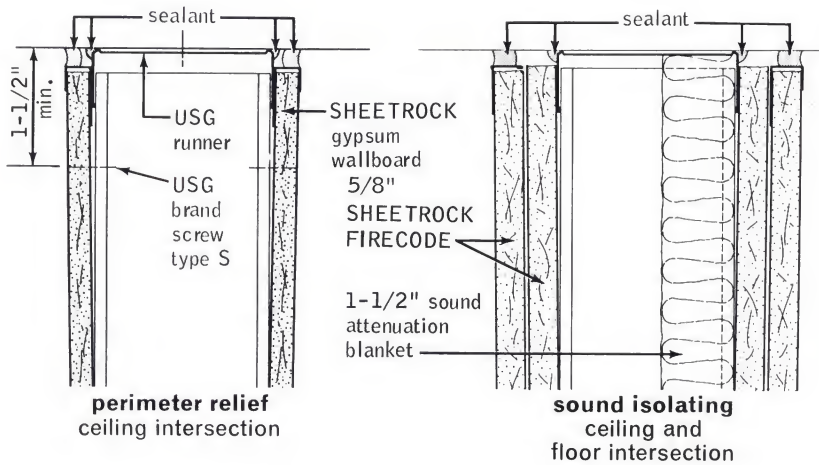
55-STC

USG-134-FT-G & H

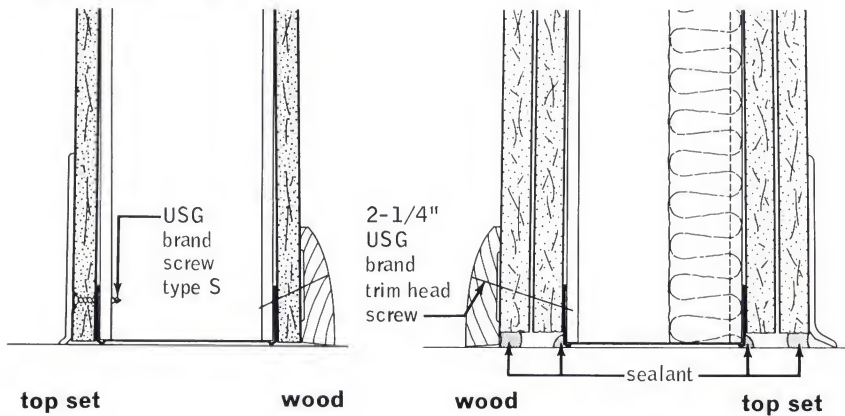
details

scale: 3" = 1'-0"

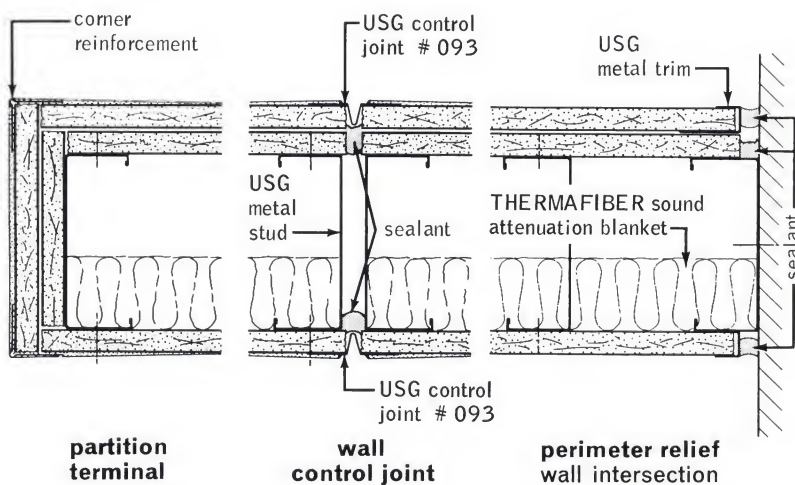
ceiling attachments



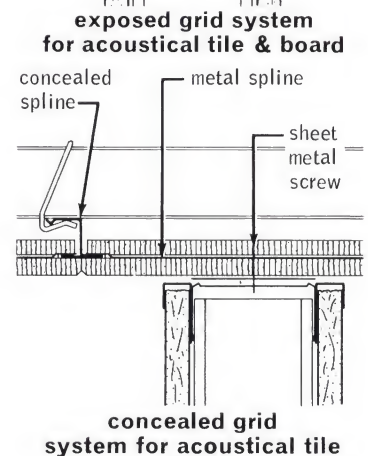
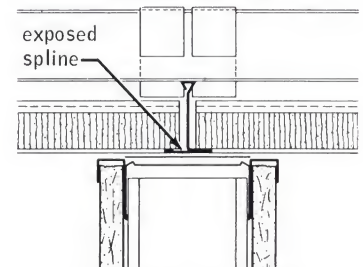
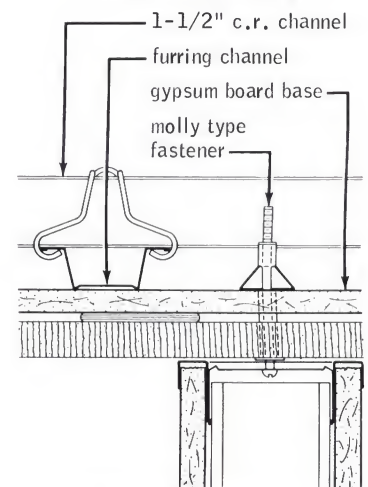
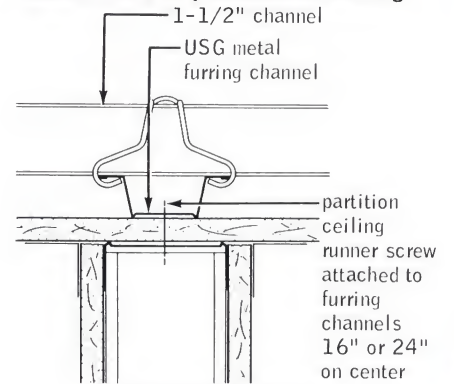
floor attachments



wall plan sections



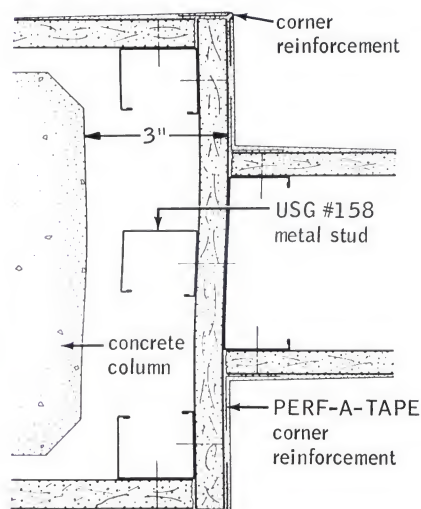
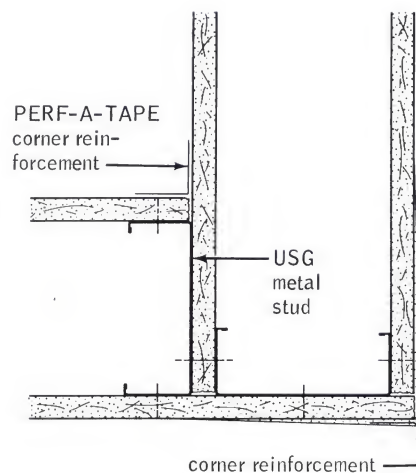
attachment of partition to ceiling



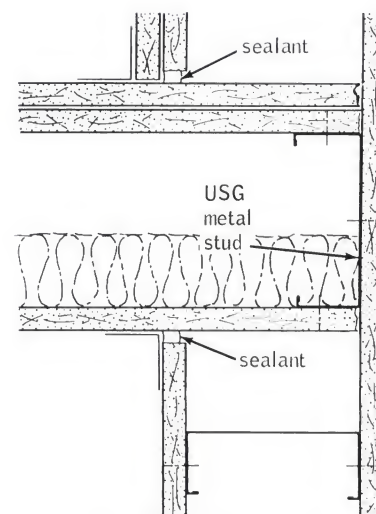
details

scale: 3" = 1'-0"

wall plan sections

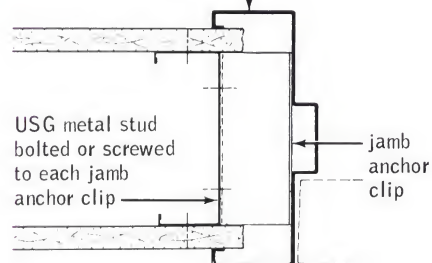
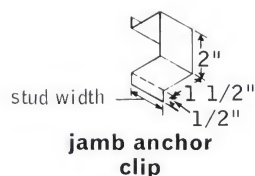
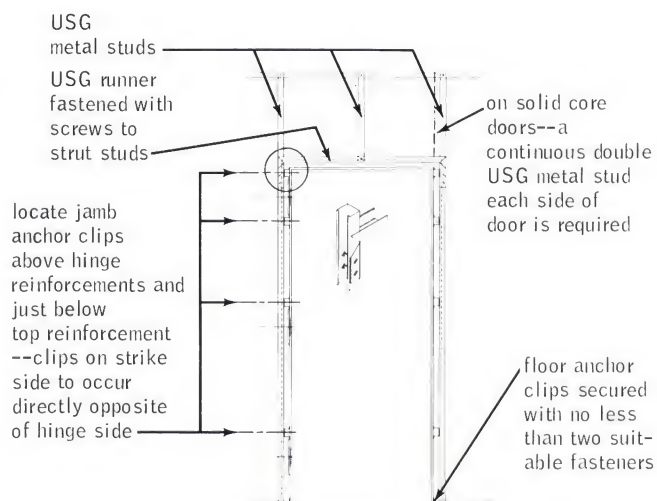
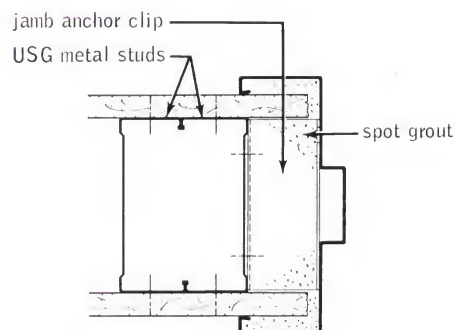
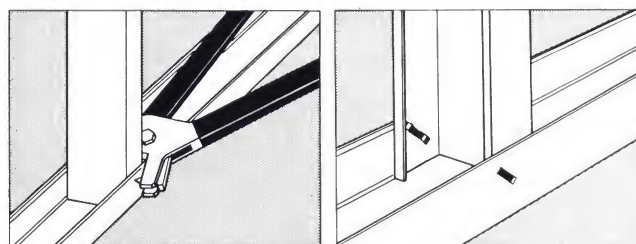
partition relief
column intersection

partition corner



partition intersection

metal door frame

standard reveal type
framejamb
standard doorjamb anchor
clipelevation
cross section through framejamb
solid core door
(alternate)positive & permanent lock
pierces & folds light metal
USG metal lock fastener

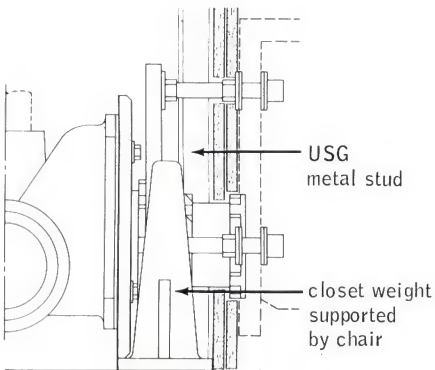
metal stud chase wall

The USG Metal Stud Chase Wall construction consists of a double row of metal studs with gypsum board cross braces between the rows. Double layer $\frac{1}{2}$ " SHEETROCK SW Wallboard is screw-applied both sides of studs and $\frac{1}{2}$ " THERMAFIBER Sound Attenuation Blankets are stapled to the back side of one base layer. The construction offers a 55 STC suitable for party walls, and a 2-hour fire-resistance rating is estimated when $\frac{1}{2}$ " SHEETROCK SW FIRECODE "C" Wallboard is used.

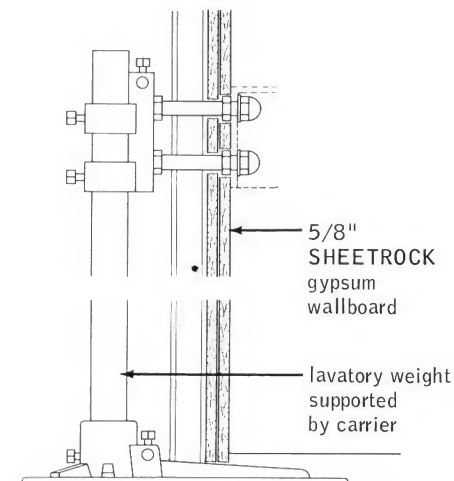
As an alternate, $2\frac{1}{2}$ " metal stud cross braces screw-attached to chase wall studs may be substituted for gypsum board braces. When chase wall studs are not directly opposite, metal stud cross braces 24" o.c. are securely anchored to a continuous horizontal $2\frac{1}{2}$ " runner screw-attached to chase wall studs within the cavity.

This construction is designed for use where greater core widths are needed for pipe chase enclosures and other service installations. It provides the same advantages as the USG Metal Stud Partition System such as speed of erection and low cost, and permits the use of one component system throughout a building.

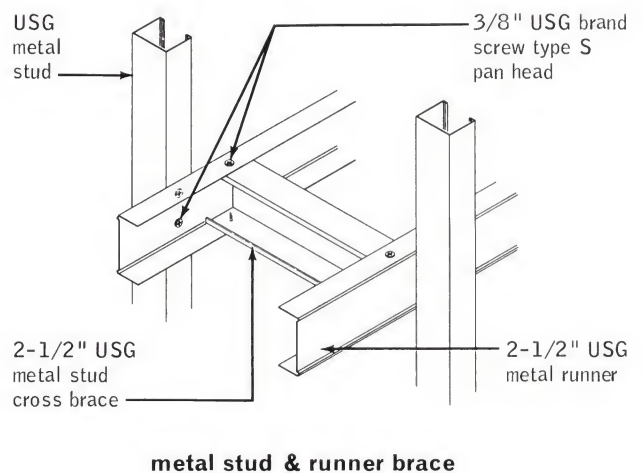
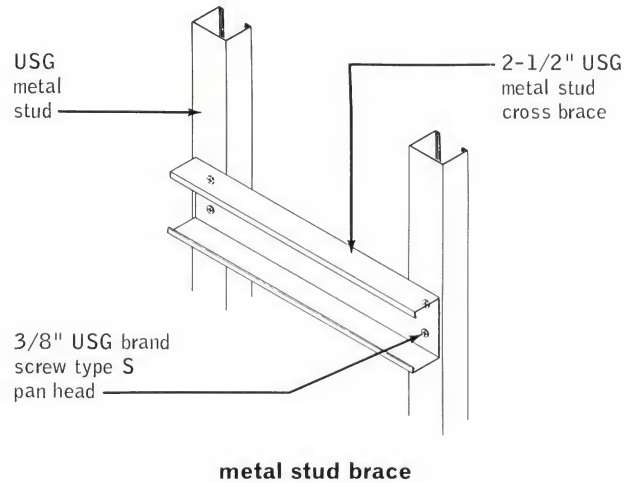
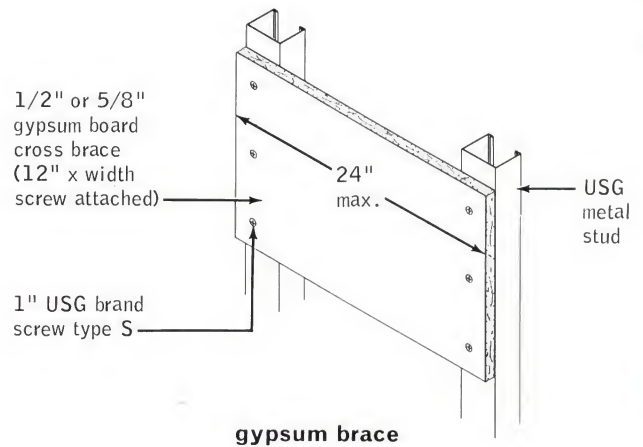
The limiting thickness for this chase wall is 24"; limiting height is 16'. Other chase walls providing greater height may be constructed with wider or heavier metal studs (see tables page 2 for design data). The minimum size of the SHEETROCK SW Gypsum Wallboard face panels or base panels should be $\frac{1}{2}$ " x 4' x ceiling height.



closet carrier



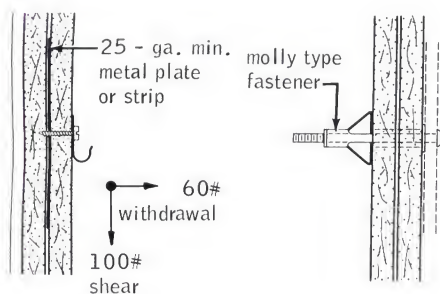
lavatory carrier



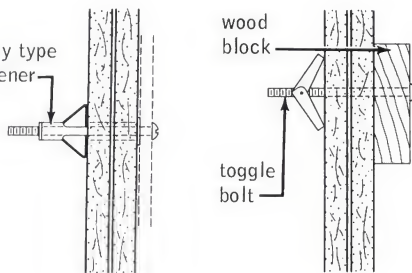
fixture attachments

fastener load table

type fastener or attachment	allowable withdrawal resistance—lbs.	allowable shear resistance—lbs.
No. 8 sheet metal screw through SHEETROCK into metal stud	50	80
1/4" molly bolt into 1/2" SHEETROCK Wallboard only	35	80
1/4" toggle bolt into 1/2" SHEETROCK only	40	60
No. 8 sheet metal screw in plastic plug	20	40
Heavy fixture attachment	70	250

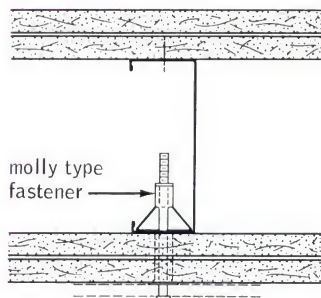


light

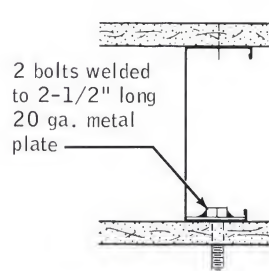


light

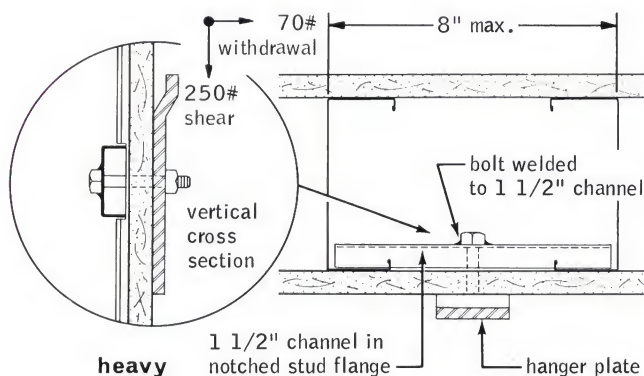
light



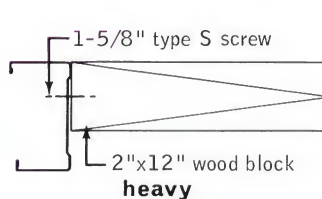
medium



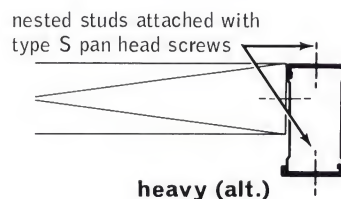
medium grab bar attachment



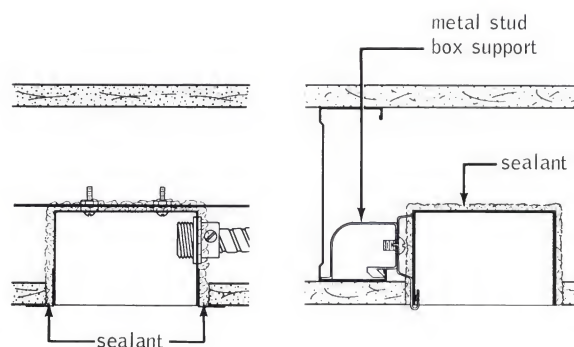
heavy



heavy

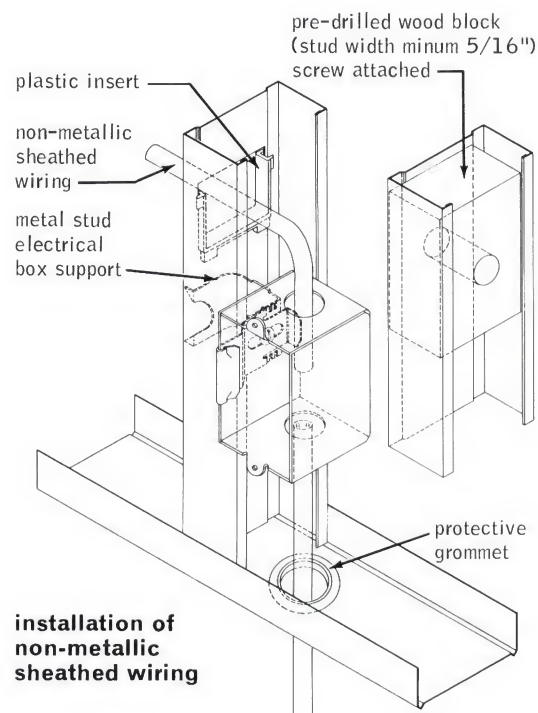


heavy (alt.)

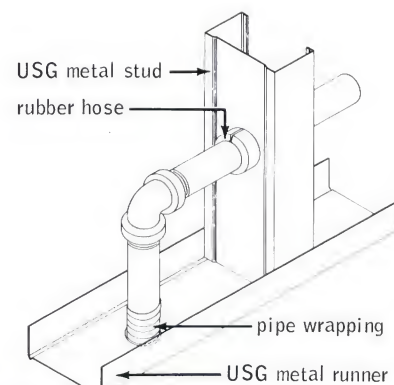


outlet box

outlet box (alternate)



installation of non-metallic sheathed wiring

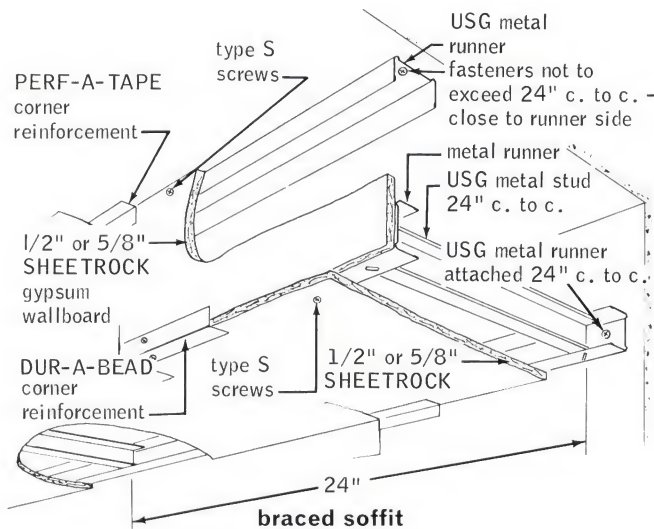


sound insulating installation of plumbing

details

USG drywall soffit

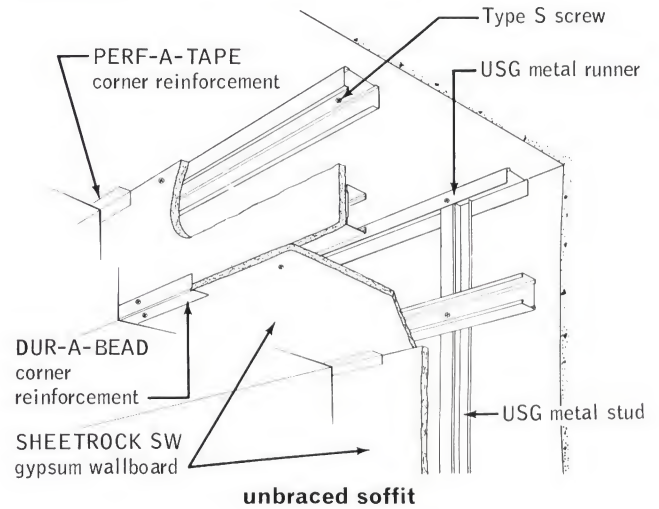
This assembly consists of galvanized steel channel runners and studs faced with SHEETROCK Gypsum Wallboard, screw attached. It is a lightweight, fast and economical method of filling over cabinets or lockers and of housing overhead ducts, pipes or conduits. The braced system permits constructing soffits with depths of 48" and widths to 72" without supplementary vertical studs. The unbraced system is for soffits up to 24" x 24".



Construction recommendations—maximum dimensions (1):

gypsum board thickness (2)	metal stud size	maximum width	max. depth for max. width shown
1/2"	1 5/8"	60"	48"
1/2"	2 1/2", 3 5/8"	72"	36"
5/8"	1 5/8"	60"	30"
5/8"	2 1/2", 3 5/8"	72"	18"

(1) The construction is not designed to support loads other than its own dead weight and should not be used where it may be subjected to excessive abuse.
 (2) The double-layer wallboard system and 5/8" thick wallboard are not recommended for this construction.



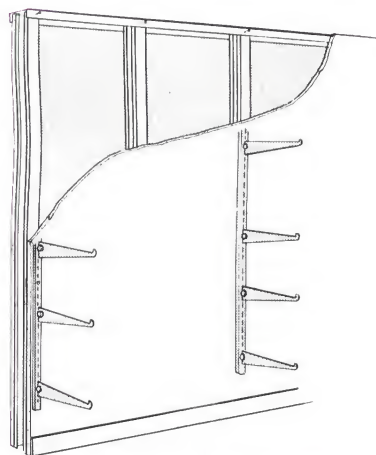
details

USG shelf-wall system

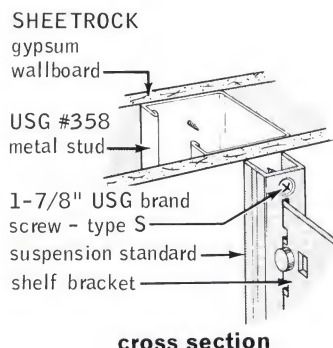
This system provides load-carrying walls for shelving in stores, offices, schools and other applications where required. Incorporating simple, quickly erected, economical metal stud components with Garcy shelf brackets, standards and accessories, the assembly offers all the advantages of metal stud-drywall construction plus the structural strength to support shelving and merchandise.

In this assembly, $3\frac{5}{8}$ " USG Metal Studs spaced no more than 24" o.c. are securely fastened to floor and ceiling runners and surfaced with either single or double layer SHEETROCK wallboard. Slotted standards are screw-attached to studs or steel reinforcing inserted between layers.

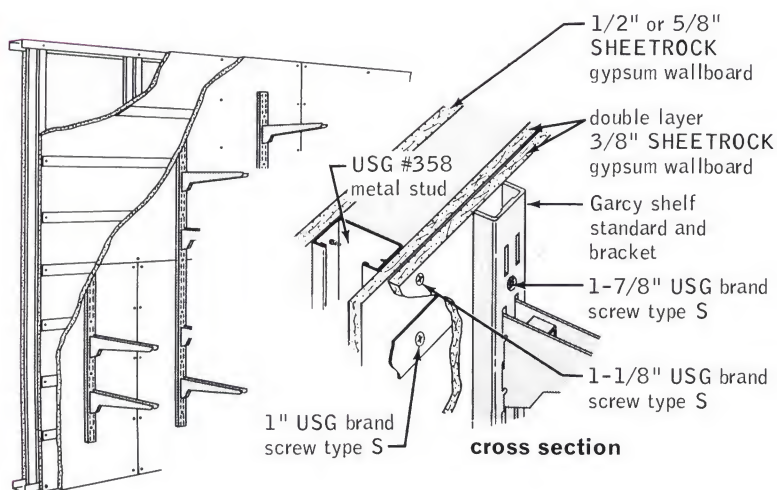
The system provides a load-carrying partition but is not structurally load-bearing. Limiting height: 16'. For specific system construction and load characteristics of shelf brackets see U.S.G. Bulletin WB-938.



over single layer wallboard



cross section



cross section

over double layer wallboard

application



stud system erection



wallboard application



screw attachment

technical data

screw locations and spacing—fire-rated metal stud drywall partitions

test number	face layer application			base layer application		
	USG brand screw		spacing and location	USG brand screw		spacing and location
	length	type		length	type	
U of C 6/15/65	1 5/8"	S	12" o.c. to studs at joints and in field, 12" o.c. to runners	1"	S	12" o.c. to studs at joints and in field, 12" o.c. to runners
UL Des 11-2 hr.	1 1/2"	G	adhesive lamination and supplementary screws	1"	S	8" o.c. to studs at joints, 12" o.c. to studs in field
UL Des 11-2 hr.	1 5/8"	S	16" o.c. to studs at joints and in field, 12" o.c. to runners	1"	S	16" o.c. to studs at joints and in field
UL Des 28-2 hr.	1 1/2"	G	adhesive strip lamination and supplementary screws	1"	S	12" o.c. to studs at joints and in field
UL Des 28-2 hr. U of C 9/21/64	1 5/8"	S	12" o.c. to studs at joints and in field	1"	S	12" o.c. to studs at joints and in field
T-3362 OSU	1"	S	12" o.c. to studs at joints and runners, 8" o.c. to studs in field			
T-1174 OSU U of C 7/31/62 GA-WP-45 1-hr.	1"	S	8" o.c. to studs at joints, 12" o.c. to studs in field			

USG Metal Studs (Standard)

USG stud width	stud spacing	max. height using 1/2" wallboard (1)				structural properties		
		(2)	(3)	(4)	(5)	I in. ⁴ x-x	S in. ³ x-x	R in. x-x
1 5/8"	12"	10'9"	10'9"	8'0"	7'0"	.046	.0489	.673
	16"	10'3"	10'0"	7'0"	—			
	24"	9'0"	8'0"	5'9"	—			
2"	12"	11'3"	11'3"	10'6"	8'0"	.073	.064	.830
	16"	11'0"	11'0"	9'3"	7'6"			
	24"	9'9"	9'9"	7'6"	7'0"			
2 1/2"	12"	14'9"	14'9"	10'9"	9'0"	.122	.0862	1.010
	16"	14'0"	13'3"	9'3"	8'3"			
	24"	12'0"	11'9"	7'6"	7'6"			
3"	12"	17'0"	15'9"	12'6"	9'9"	.183	.109	1.212
	16"	16'0"	15'0"	11'9"	9'0"			
	24"	14'0"	13'0"	9'9"	8'0"			
3 1/4"	12"	18'3"	16'9"	13'3"	10'0"	.230	.128	1.299
	16"	17'3"	15'9"	12'6"	9'3"			
	24"	15'0"	13'9"	10'9"	8'3"			
3 3/8"	12"	20'0"	19'6"	13'9"	10'3"	.284	.142	1.411
	16"	19'0"	17'0"	12'0"	9'6"			
	24"	16'0"	13'9"	9'9"	8'6"			
4"	12"	21'6"	20'3"	14'3"	10'3"	.334	.156	1.528
	16"	20'3"	17'9"	12'6"	9'6"			
	24"	17'3"	14'6"	10'3"	8'6"			
6"	12"	21'6"	20'3"	14'3"	10'3"	.379	.162	1.575
	16"	20'3"	17'9"	12'6"	9'6"			
	24"	17'3"	14'6"	10'3"	8'6"			

- (1) Applied to both sides of partition except (5); height not limited by length of unsupported run or size and location of openings.
 (2) Max. height allowable where no superimposed load is applied perpendicular to partition.
 (3) Max. height allowable where a 5 psf uniform load is applied perpendicular to partition.
 (4) Max. height allowable where a 10 psf uniform load is applied perpendicular to partition.
 (5) Allowable with wallboard applied on one face of studs only; no superimposed load perpendicular to partition.

20-ga. USG Metal Studs

USG stud width	stud spacing	max. height using 1/2" wallboard (1)						structural properties		
		wallboard both sides			wallboard one side			I in. ⁴ x-x	S in. ³ x-x	R in. x-x
		(2)	(3)	(4)	(5)	(6)	(7)			
2 1/2"	12"	17'0"	16'3"	13'0"	17'0"	14'0"	11'3"	.216	.169	1.01
	16"	16'3"	15'3"	12'3"	16'3"	12'9"	10'3"			
	24"	15'0"	13'3"	10'6"	14'0"	11'3"	9'0"			
3 3/8"	12"	22'0"	21'0"	16'9"	22'0"	18'9"	15'0"	.509	.276	1.43
	16"	21'9"	19'9"	15'9"	21'6"	17'0"	13'6"			
	24"	19'3"	17'3"	13'6"	18'9"	15'0"	11'9"			
6"	12"	33'9"	28'9"	22'9"	32'6"	25'9"	20'6"	1.317	.484	2.04
	16"	31'0"	27'0"	21'6"	29'6"	23'9"	18'6"			
	24"	25'6"	23'6"	18'0"	25'6"	20'9"	16'3"			

- (1) Deflection limited to L/240. Height not limited by length of unsupported run or size and location of openings. Under loads applied perpendicular to partition: (2) none (3) 5 psf (4) 10 psf (5) none (6) 5 psf (7) 10 psf.

specifications

notes to architect

1. Metal door and borrowed-light frames should be at least 18-ga. steel, shop primed, and have throats accurately formed to overall thickness of partition. They should be anchored at floor with 14-ga. steel plates welded to trim flanges, with provision for two power-driven anchors or equal per plate. Jamb anchor clips should be 18-ga. steel welded in jamb (see details, page 5). Studs are screw-attached to jamb anchor clips. Three-piece frames may also be used with these partitions.

For added door frame restraint, spot-grouting at the jamb anchor clip is recommended. Spot-grouting and additional reinforcement at the jamb are required for heavy (over 50 lbs. with hardware) or oversize doors (more than 36" wide) which also require door closures and bumpers. Apply DURABOND* or USG Ready-Mixed Joint Compound just before inserting board into frame; do not terminate gypsum panel against trim return.

2. Wallboard surfaces should be isolated with control joints or other means where: (a) partition abuts a structural element (except floor) or dissimilar wall or ceiling; (b) construction changes within the plane of the partition; (c) partition run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-height door frames if control joints extend to ceiling from both corners.

3. Penetrations of the wallboard diaphragm, such as door frames and borrowed-light openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

4. Additional chases can be provided in metal studs (except in fire-rated construction) by cutting round holes up to 3/4 of stud width, spaced 12" apart.

5. Ceramic Tile—SHEETROCK W/R Gypsum Wallboard is recommended as a base for adhesive application of ceramic, metal and plastic tile.

6. Fixture Attachment—Lightweight fixtures and trim should be installed using plastic plugs or expandable anchors for screw attachment. Wood or metal mounting strips for cabinets and

shelving should be attached with toggle bolts through the wall-board near studs (see details, page 7).

7. Wood base should be applied with trim head screws placed at each stud and midway between studs (12" o.c.).

8. Where these partitions are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs, such as at electrical boxes, and at the perimeter of the partition. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. Door and borrowed-light openings are not recommended in sound control partitions.

9. For adhesive applications of TEXTONE* Gypsum Panels, only DURABOND Adhesives are recommended; other adhesives may not be compatible with the vinyl surface.

10. See U.S.G. Product Folders in this series: Joint Treatment Folder for Joint System Specifications; Gypsum Wallboard Folder for Wallboard System Components; Paint Products Folder for Paint Specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

In cold weather and during wallboard application and joint finishing, temperatures within the building shall be maintained within the range of 55° to 70°F. Adequate ventilation shall be provided to carry off excess moisture.

Part 2: products

2.1 materials

- a. USG Metal Studs—(Standard) (20-ga.) Nos. 158 (1 5/8"), 200 (2"), 212 (2 1/2"), 300 (3"), 314 (3 1/4"), 358 (3 5/8"), 400 (4"), 600 (6").
- b. USG Metal Runner—(Standard) (20-ga.) Nos. 158 (1 5/8"), 200 (2"), 212 (2 1/2"), 300 (3"), 314 (3 1/4"), 358 (3 5/8"), 400 (4"), 600 (6").
- c. Faceboards—(1/2") (5/8") thick, 48" wide SHEETROCK SW (Regular) (FIRECODE) (FIRECODE "C"), (TEXTONE), (TEXTONE SW) lengths as required.
- d. Backing Board—(1/2") (5/8") thick, (24") (48") wide BAXBORD (Regular) (FIRECODE), 8' lengths; 1/2" USG Mineral Fiber Sound Deadening Board; 1/4" SHEETROCK Gypsum Wallboard.
- e. Insulation—THERMAFIBER Sound Attenuation Blankets (1" x 24" x 48") (1 1/2" x 24" x 48") (2" x 24" x 48").
- f. Adhesive
 - USG or PERF-A-TAPE Joint Compound-Taping (for double layer application).
 - (DURABOND 200) (DURABOND 300) (for single layer application).

g. Joint Treatment—(select a U.S.G. Joint System).

h. Fasteners—USG Brand Screws: 3/8" Type S, pan head; 3/8", 1/2" Type S-12, pan head; 7/8", 1", 1 5/16", 2 1/4" Type S, bugle head; 2 1/4" Type S, trim head; 1 1/2" Type G, bugle head.

i. USG Trim (specify type from page 2).

j. USG Corner Bead—DUR-A-BEAD, PERF-A-BEAD, No. 900 (specify type from page 2).

k. USG Control Joint No. 093.

l. Caulking—USG Acoustical Sealant.

Part 3: execution

3.1 stud system erection

Attach metal runners at floor and ceiling to structural elements with suitable fasteners located 2" from each end and spaced 24" o.c., or to suspended ceilings with toggle or molly bolts spaced 16" o.c.

Position studs vertically, engaging floor and ceiling runners, and spaced 24" o.c. When necessary, splice studs with 8" nested lap and one positive attachment per stud flange. Place studs in direct contact with all door frame jambs, abutting partitions, partition corners and existing construction elements. Where studs are installed directly against exterior walls and a possibility of water penetration through walls exists, install asphalt felt strips between studs and wall surfaces.

Anchor all studs for shelf-walls and those adjacent to door and window frames, partition intersections, and corners to ceiling and floor runner flanges with USG Metal Lock Fastener tool. Securely anchor studs to jamb and head anchor clips of door or borrowed-light frames by bolt or screw attachment. Over metal door and borrowed-light frames, place horizontally a cut-to-length section of runner, with a web-flange bend at each end, and secure with one positive attachment per flange. Position a cut-to-length stud (extending to ceiling runner) at vertical board joints over door frame header.

3.2 wallboard erection

Apply wallboard (vertically) (horizontally). Position all edges over stud flanges for vertical application; all ends over framing for horizontal application. Use maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together. Stagger joints on opposite sides of partition.

Screw spacing shown below is for non-rated construction. For fire-rated construction obtain screw spacing from table, page 10.

For single-layer vertical application of wallboard, space screws 12" o.c. in field of board and 8" o.c. staggered along vertical abutting edges. For horizontal wallboard application, space screws 12" o.c. in field and along abutting end joints.

For single-layer adhesive application, pre-bow panels and attach vertically to studs using 3/8" continuous adhesive beads applied to face of studs. Apply one bead to intermediate studs and two beads to studs occurring at panel joints. Secure panel at top and bottom with 1" type S screws spaced 16" o.c. Impact panel along each stud to insure good contact at all points.

For double-layer screw attachment, space screws 16" o.c. for both layers. Apply both layers of wallboard vertically with joints in face layer offset from base layer joints. For 5/8" wallboard, use 1" screws for base layer and 1 5/8" screws for face layer. For 1/2" wallboard, use 7/8" screws for base layer and 1 5/16" screws for face layer.

For double-layer laminated construction, attach base layer with 1" type S screws spaced 8" o.c. at joint edges and 12" o.c. in field. Apply face layer vertically with USG Joint Compound-Taping spread on back side, joints staggered approx. 12" and fastened to base layer with 1 1/2" type G screws. Drive screws approx. 2' from ends and 4' o.c. in field of panel, 1'

from ends and 3' o.c. along a line 2" from vertical edges. Temporary shoring or support installed 16" to 24" o.c. until adhesive is dry may be used in place of screws.

3.3 chase wall erection

Align two parallel rows of floor and ceiling runners spaced apart as detailed. Attach to concrete slabs with concrete stub nails or power-driven anchors 24" o.c., to suspended ceilings with toggle or molly bolts 16" o.c., or to wood framing with suitable fasteners 24" o.c.

Position metal studs vertically in runners, 24" o.c., with flanges in the same direction, and with studs on opposite sides of chase directly across from each other. Anchor all studs to floor and ceiling runner flanges with USG Metal Lock Fastener tool.

Cut cross bracing to be placed between rows of studs from wallboard, 12" high by chase wall width. Space braces 48" o.c. vertically and attach to stud webs with six 1" type S screws per brace. If larger braces are used, space screws 8" o.c. max. on each side.

Bracing of 2½" metal studs may be used in place of gypsum board. Anchor web at each end of metal brace to stud web with two ¾" pan head screws. When chase wall studs are not opposite, install metal stud cross braces 24" o.c. horizontally and securely anchor each end to a continuous horizontal 2½" runner screw-attached to chase wall studs within the cavity.

3.4 TEXTONE SW panel erection

Apply TEXTONE Smoothwall Gypsum Panels vertically; attach to metal studs with abutting edges over stud flanges, DURABOND Adhesive at studs between joints, and 1" type S screws spaced 12" o.c. at panel joints. Fill joints with DURABOND 90 Joint Compound and finish with USG Ready-Mixed Joint Compound. At long edges of each panel, lap long flap over shorter and secure both flaps of covering material over finished wallboard joint with wheat paste. Smooth fabric with a broad knife to level surfaces, trim and roll to form a neat, tight butt joint.

3.5 mineral fiber sound deadening board erection

For two-layer construction with mineral fiber sound deadening board, apply base layer sound deadening board vertically with joints staggered on opposite sides of partition. Attach board to metal studs with 1" type S screws spaced 27" o.c. along vertical joints and at quarter and mid-points of panel height along intermediate stud. Place two screws at each end

of board through runner 1" from each vertical edge. Apply face layer vertically with joints staggered from base layer joints and laminate to base layer using PERF-A-TAPE Joint Compound-Taping. Fasten face boards around perimeter with 1⅝" type S screws spaced 12" o.c.

3.6 drywall soffit erection

Attach metal runners 24" o.c. to concrete slabs with concrete stub nails or power driven anchors, to suspended ceilings with toggle bolts or molly bolts or to wood framing with suitable fasteners. On stud walls, space fasteners to engage each stud. On ceilings, place fastener close to outside face runner. Fasten vertical face panel to web of face corner runner and flange of ceiling runner with 1" type S screws spaced 12" o.c. For braced furring, insert metal studs between face corner runner and sidewall runner and attach alternate studs to runners with USG Metal Lock Fastener tool. Attach bottom face panel to metal studs and runners with 1" type S screws spaced 12" o.c. Space screws in face corner runner at least 1" from edge of wallboard panel.

3.7 accessory application

a. Joint System—Finish all face board joints and internal angles with a U.S.G. Joint System installed according to manufacturer's directions. Spot exposed fasteners on face layers and finish corner bead, control joints and trim as required, with at least three coats of joint compound, feathered out onto panel faces and sanded smooth.

b. Laminating Adhesive—Spread to provide ½" adhesive beads 4½" o.c. for full sheet lamination. For strip lamination, apply adhesive in vertical strips of four ½" beads 1½" to 2" o.c. Space strips 24" o.c.

c. Corner Bead—Reinforce all vertical and horizontal exterior corners with corner bead fastened with staples 9" o.c. on both flanges along entire length of bead.

d. Metal Trim—Where partition terminates against masonry or other dissimilar material, apply metal trim over wallboard edge and fasten with screws or staples spaced 12" o.c.

e. P-1 Vinyl Trim—Slip trim over wallboard with long flange behind board. Install board with trim firmly abutting surface.

f. Screws—Power-drive at least ⅜" from edges or ends of wallboard to provide uniform dimple ⅛" deep.

g. Control Joints—Break wallboard behind joint and back by double studs. Attach control joint to face layer with staples spaced 6" o.c. on both flanges along entire length of joint.

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (metal products, adhesives); SHEETROCK, FIRECODE (gypsum wallboard); BAXBORD (gypsum backing board); PERF-A-TAPE, DURABOND (joint treatment); DUR-A-BEAD, PERF-A-BEAD (corner reinforcement); THERMAFIBER (insulation products); TEXTONE (gypsum panels).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Mov Demountable Partn— $\frac{1}{2}$ " vinyl faced TEXTONE FIRECODE "C" gypsum panels & battens screw att— $2\frac{1}{2}$ " USG met studs 24" o.c.—2" THERMAFIBER sound atten blkts wt 6 width $3\frac{1}{2}$ "	UL Des 21-1 hr (f) TL-63-127 (s)		49	187	Low cost—only metal stud movable partn. with high sound & fire rating	a-1281
N/A	Mov Demountable Partn— $\frac{1}{2}$ " vinyl faced TEXTONE FIRECODE gypsum panels & battens screw att— $2\frac{1}{2}$ " USG met studs 24" o.c. wt $5\frac{1}{2}$ width $3\frac{1}{2}$ "	TL-63-126 (s)	42		172	Same as TL-63-127 without wool—note stc difference	a-1281

description

The USG Demountable Drywall Partition, developed for maximum design freedom, offers complete movability and virtually 100% reusable components. It is suitable for ceiling, cornice or bank rail partitions in all types of commercial, industrial and institutional construction. This highly versatile, non-load bearing partition is quickly erected from readily available standard components.

This assembly consists of $\frac{1}{2}$ " thick, 48" wide, predecorated TEXTONE* Vinyl Panels or SHEETROCK* Wallboard face panels attached to $2\frac{1}{2}$ " USG Metal Studs spaced 24" o.c. and set in USG Metal Runners. Where a 5' module is required, 30" wide panels are available on special order. With the "100 series" components, screw fasteners and abutting panel edges are concealed by decorative battens and corners, fabricated to accommodate vinyl inserts matching TEXTONE panel patterns. With the "200 series" components, low profile aluminum H-studs and corner studs are used at the panel edges. Joint trim and studs are installed over face panels in one operation to provide faster erection and time-saving relocation. Anodized aluminum base, trim, door frames and glazed opening components are available.

The system accepts all interior finishes but by using TEXTONE Vinyl Panels, available in a wide range of fully coordinated colors and textures, finishing time is reduced. The tough, scuff-resistant, long-lasting, washable surface of TEXTONE Panels complements any interior and is easy to maintain.

function and utility

Versatile—Suitable for use in modernization and in all types of new construction. Glazing may be combined with color coordinated vinyl surfaces to satisfy design requirements. Panels are simply cut and provide complete modularity.

Accessible—The wall cavity is easily entered in the "100 series" by removing any panel. This simplifies both installation and relocation of utilities such as electrical outlets or communications wiring.

Fire Resistant—Constructed of incombustible components; a 1-hour fire resistance rating has been established.

Sound Control—The construction described (see table above) has a 49 sound transmission class rating.

Lightweight—5.5 lbs. per sq. ft. when faced each side with $\frac{1}{2}$ " SHEETROCK Wallboard.

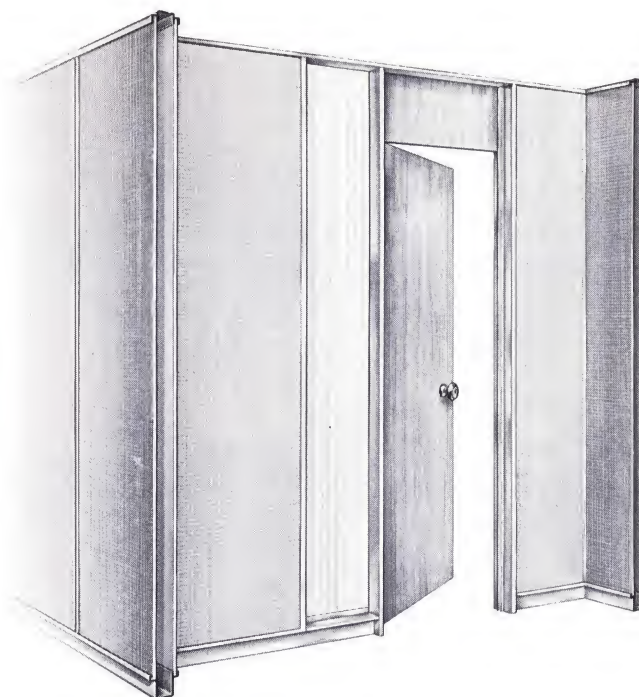
Economical—This system provides movability at a cost comparable to many fixed partitions. Standard panels are stocked locally; all other components are readily available. The ease of dismantling and relocation saves costly business interruptions and inconvenience during remodeling.

sound transmission loss—db

test no.	method	band center frequency—Hz											STC
		125	175	250	350	500	700	1000	1400	2000	2800	4000	
TL-63-127	Lab	34	38	40	46	47	47	50	51	53	49	54	49
TL-63-126	Lab	22	28	32	38	43	44	46	48	46	41	45	42

limitations

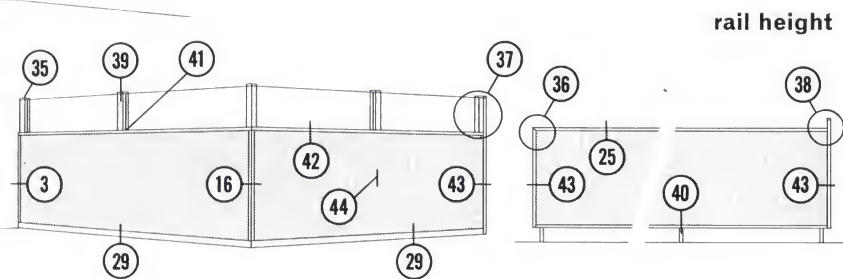
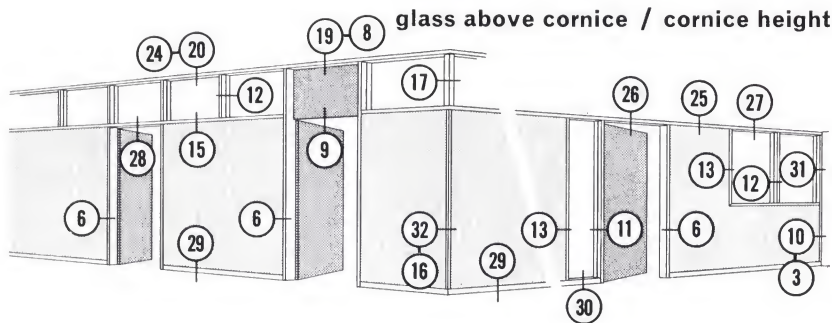
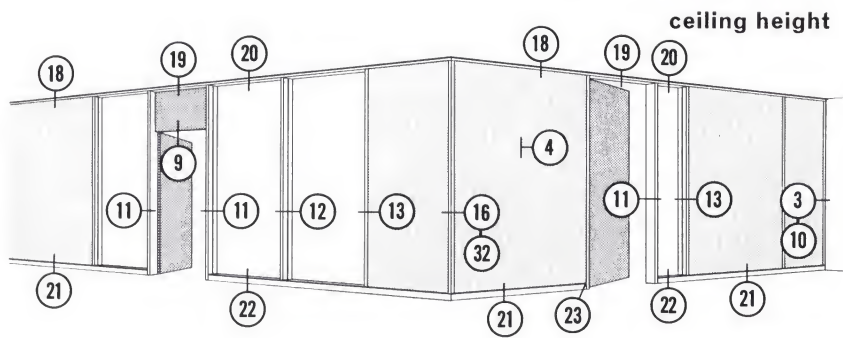
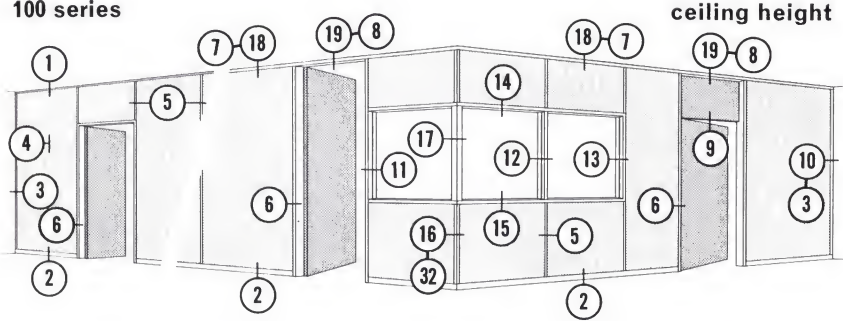
1. Non-load bearing.
2. Not recommended for use where normally exposed to excessive moisture.
3. Limiting height (Ceiling Height Partition): 12' for 100 series; 10' for 200 series and for 100 series using ABS-114 recessed base. Limiting width for borrowed lights: 48".
4. Because cornice and bank rail height movable partitions are more flexible than permanent partitions, certain precautions must be taken to resist lateral and impact loads (see Specifications, page 6).



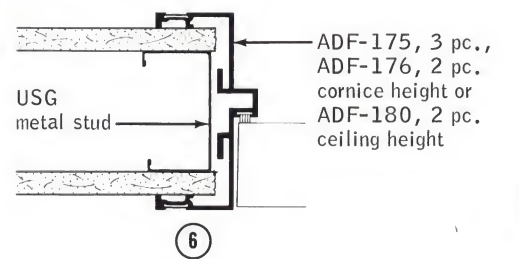
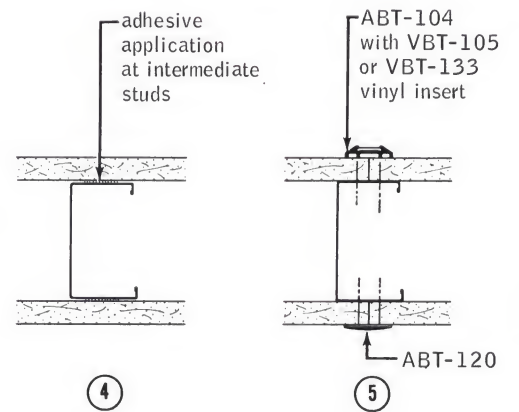
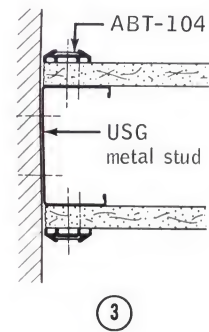
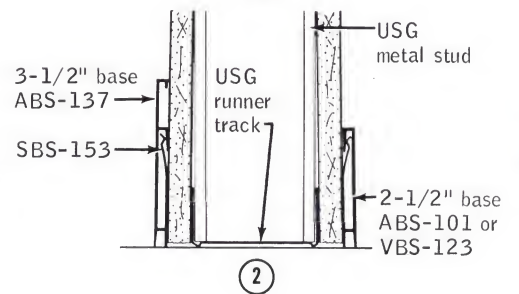
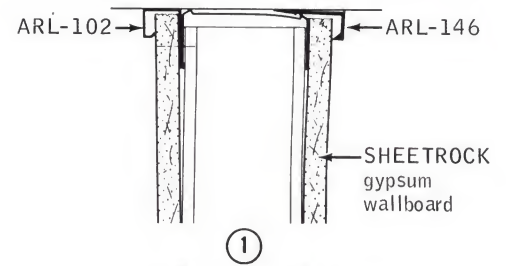
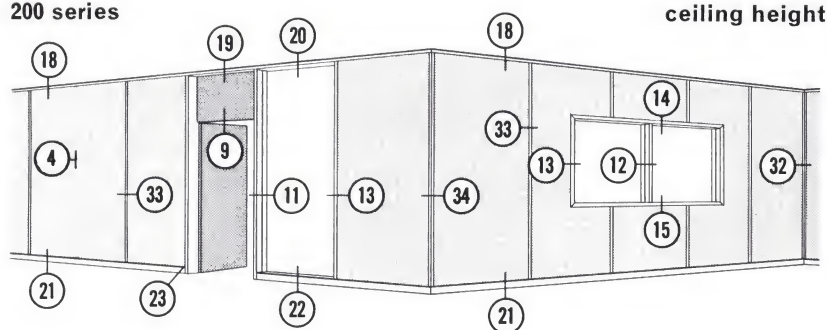
elevations & details

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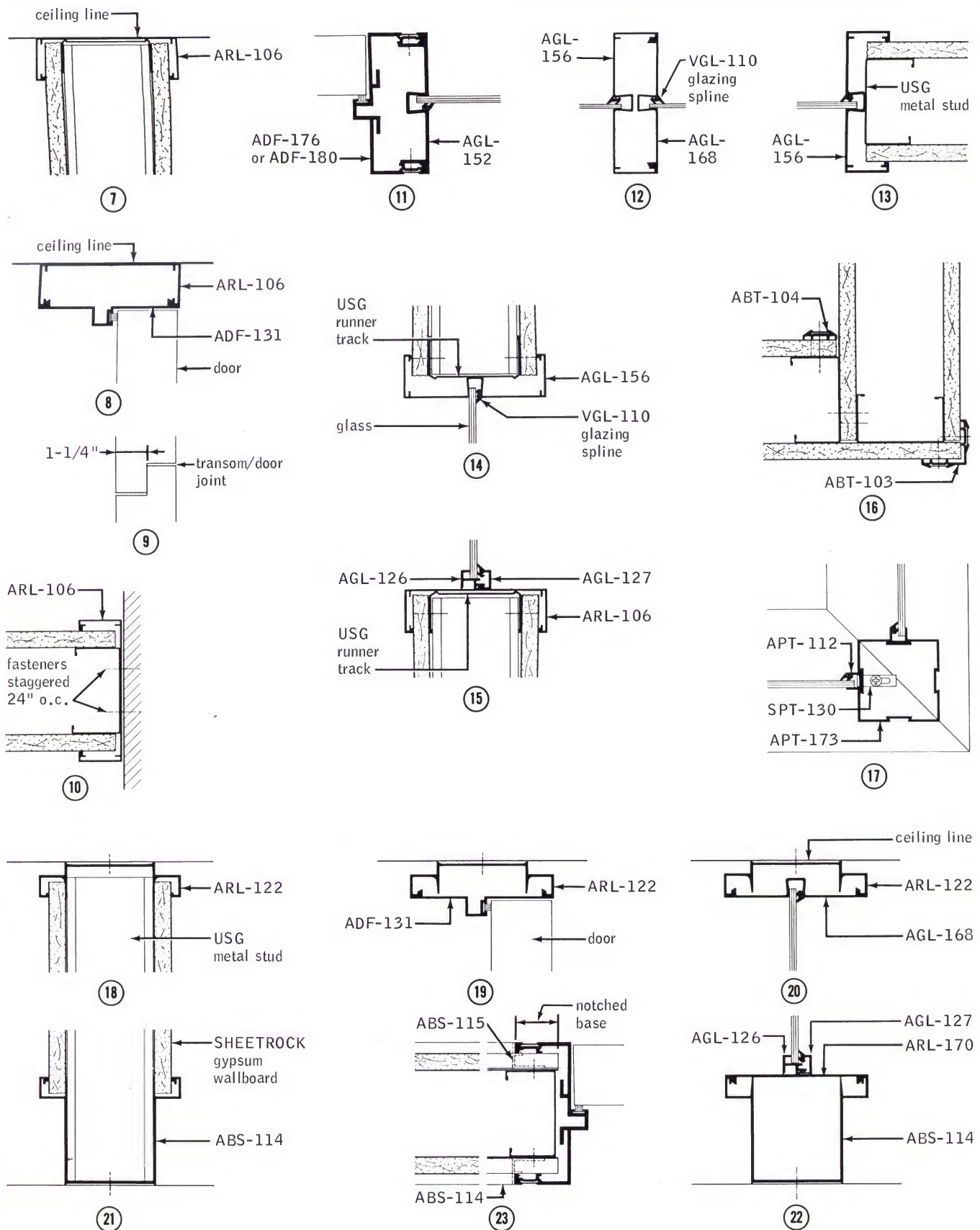
100 series



200 series

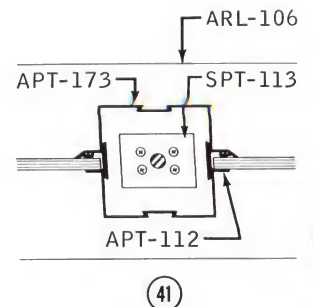
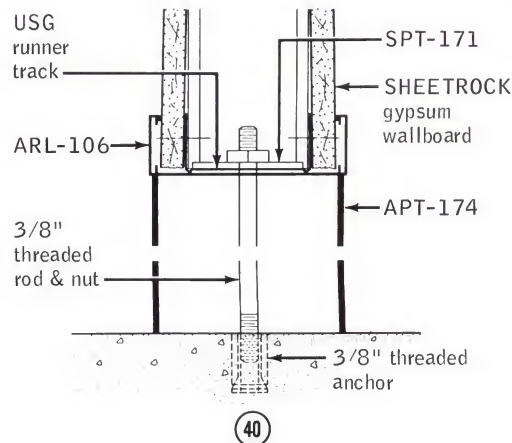
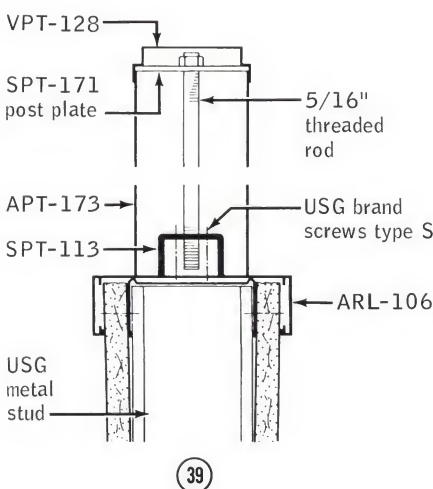
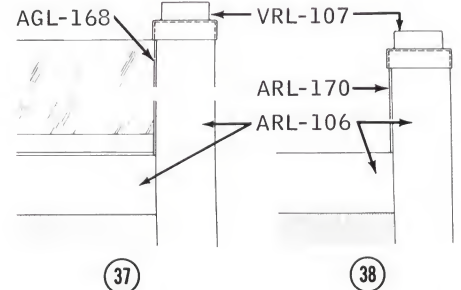
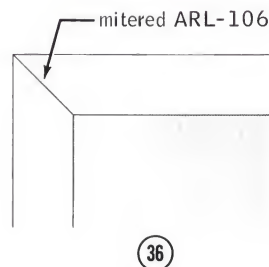
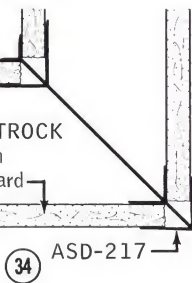
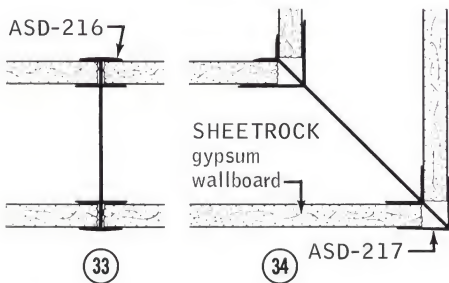
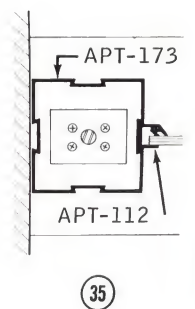
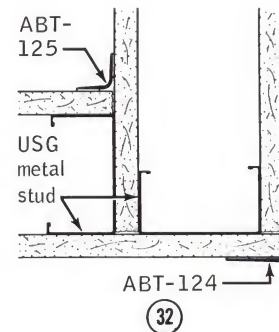
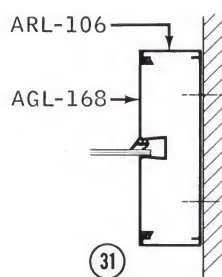
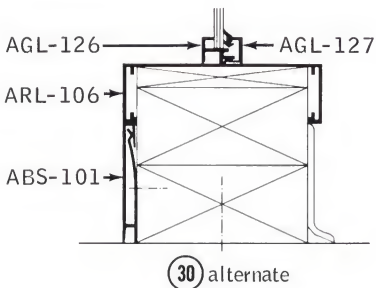
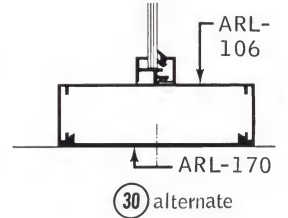
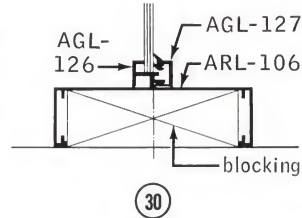
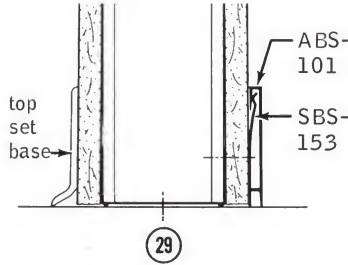
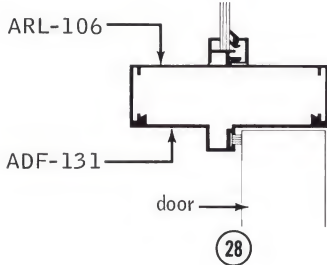
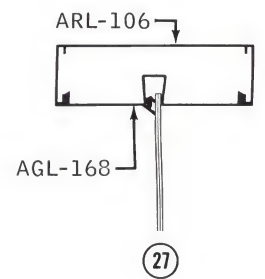
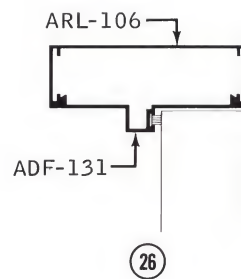
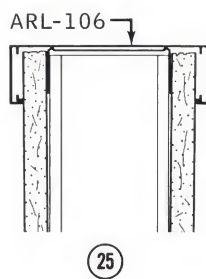
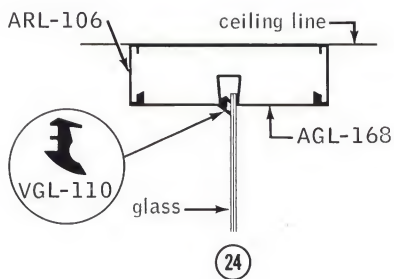


details

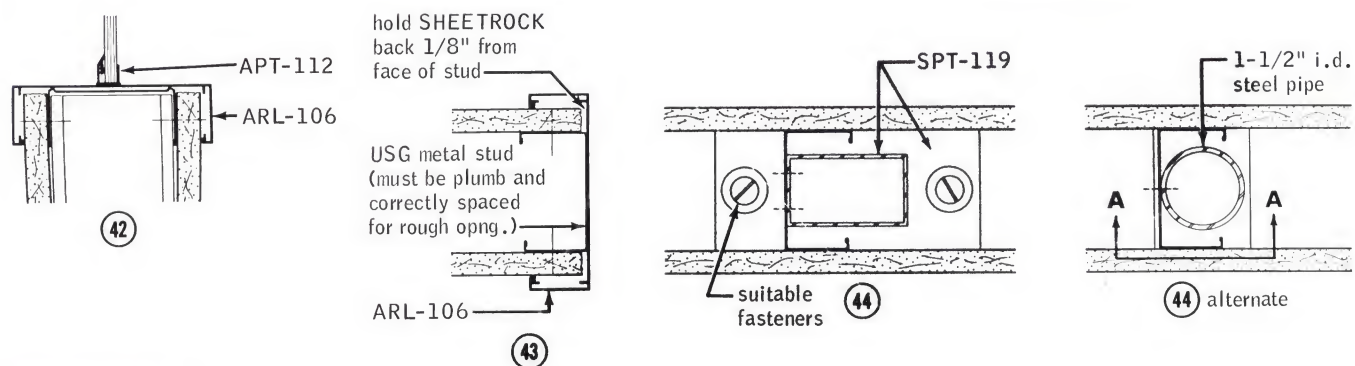


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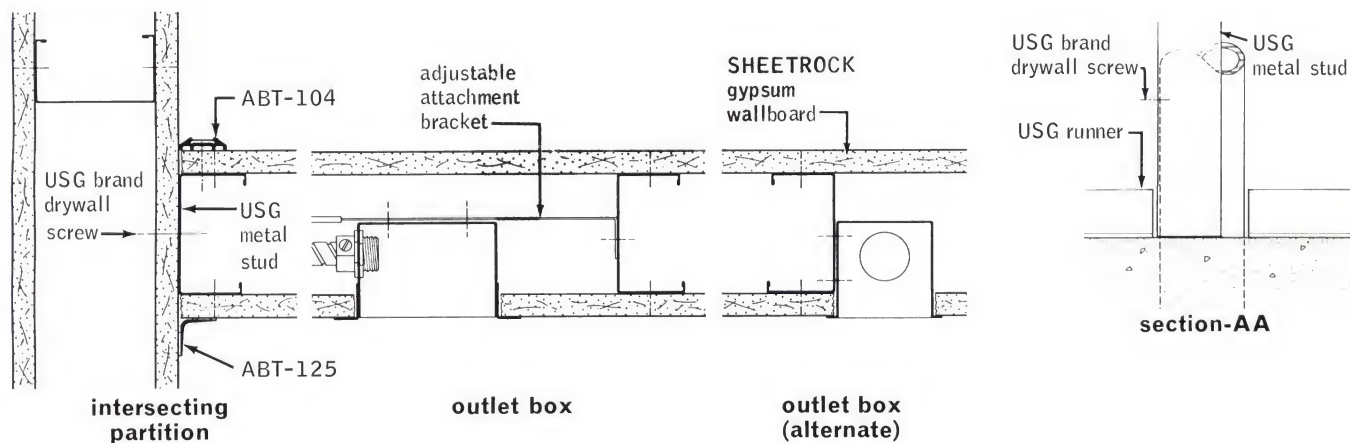
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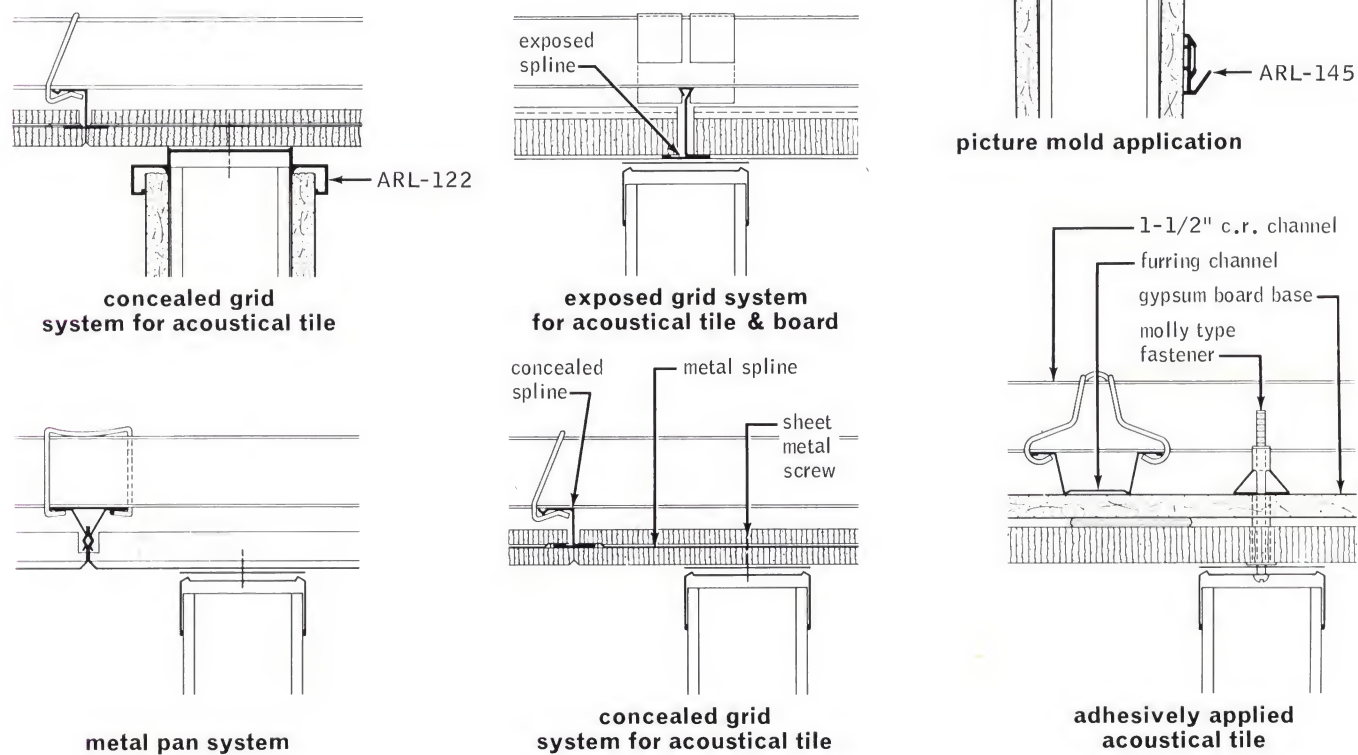
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miscellaneous



suspended ceiling attachments



specifications

notes to architect

1. *USG Aluminum Door Frames*, furnished in three pieces for 3'0"x6'8" and 3'0"x7'0" openings; two pieces for cornice height and ceiling height openings for 7' doors with transom above, are recommended. These frames will accommodate hollow core and solid core doors in 1 3/4" thicknesses only. Frames are supplied with concealed hardware including three 4 1/2"x4" hinges and standard 2 3/4"x1 1/8" strike and strike box. Ball-bearing hinges are available and should be specified when closers are required.

2. *On cornice height partitions*, the limiting unrestrained length between supports, including cornice height with door openings joined by continuous top rail, should not exceed 14'0". Rails should not be spliced within 14'0" unrestrained lengths.

3. *On bank rail partitions* a continuous Rail ARL-106 must be used to cap the partition. Maximum recommended partition length: 14' with both ends terminating against a perpendicular wall or column or corner section; 14' with wallboard applied horizontally and 12' with wallboard applied vertically with one end of the partition terminating against a perpendicular wall, column or corner section. Maximum size for glass on glazed bank rail partitions is 13"x48". When glass exceeding 13" height is required, a continuous top runner must be used as in a glazed cornice height partition. Obtain glass manufacturer's recommendations for maximum number of panels in a run.

4. Additional chases for electrical conduit or pipe can be provided by cutting round holes no greater in size than 75% of the stud width, located in the center of the stud web and spaced at least 12" apart. Additional holes should not be cut where a fire rating is required.

5. Where this partition is used as a sound barrier, the use of caulking or foam gasketing to seal all cut-outs, such as at electrical fixtures and to seal all intersections with the adjoining structure is recommended. Eliminate cutting holes back to back and adjacent to each other.

For maximum sound isolation the partition should extend from structural slab to structural slab, closing all openings.

6. The addition of 2"x24x2 1/2 lb. density THERMAFIBER* Sound Attenuation Blankets to the stud cavity, pressed tightly in place, stapled to the back side of one face of partition, will increase the sound transmission loss of the partition.

7. **Fixture Attachment**—Lightweight fixtures and trim should be installed using plastic plugs or other expandable anchors for screw attachment. Medium and heavy weight fixtures should be supported from the primary framing.

8. **Electrical Fixtures**—The depth of electrical boxes should not exceed 2 7/8". Boxes may be attached with suitable fasteners directly to adjacent vertical metal studs or to horizontal electrical straps spanning between studs.

9. Adhesive for the application of TEXTONE Panels should be DURABOND 200 Adhesive as manufactured by U.S.G. Do not use any solvent-based adhesive for this application.

Because of the potential incompatibility between vinyl-surfaced wallboard and solvent-based adhesives, United States Gypsum cannot be responsible for problems arising from the use of either its adhesives with vinyl-surfaced wallboard manufactured by others, or its vinyl-surfaced wallboard applied with adhesive manufactured by others.

10. See U.S.G. product folders in this series: *Paint Products Folder for Paint Specifications*; *Gypsum Wallboard Folder for information on Wallboard System Components*.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 **scope**—Specify to meet job requirements.

1.2 description of systems

Partitions shall be (100 series) (200 series) type, 3 1/2" thick (railing, cornice and/or ceiling height).

1.3 qualifications

All materials herein specified, unless otherwise indicated, shall be manufactured by United States Gypsum Company and shall be installed in accordance with their current printed directions and specifications.

1.4 environmental conditions

In cold weather, the building shall be heated well in advance of and during application of gypsum panels and adhesives to maintain a temperature in the range of 55° to 70°F., and ventilation shall be provided to eliminate excessive moisture.

1.5 submittals

The partition contractor shall submit shop drawings showing the planned layout and partition construction details.

1.6 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

Part 2: products

2.1 materials

- a. Studs—galvanized steel USG Metal Stud No. 212 (2 1/2").
- b. Metal Runners—floor and ceiling, galvanized steel USG Metal Runner, No. 212 (2 1/2"), with 1 1/4" flange.
- c. Gypsum Board—1/2" x 48" wide, square edge SHEETROCK (Regular or FIRECODE*) Gypsum Wallboard; 1/2" x 48" wide TEXTONE (Regular or FIRECODE) Vinyl Panels.
- d. Fasteners—1", 1 1/8" USG Brand Screws, Type S; 1", 1 1/4" USG Brand Screws, bugle head, Type S; 3/8", 1/2" USG Brand Screws, pan head, Type S-12; 7/8", 1 1/4" (cadmium plated) USG Brand Finishing Screws; 1 5/8" USG Brand Trim Head Screws.
- e. Adhesive—DURABOND 200 Adhesive (for wallboard application).
- f. Plastic Accessories Adhesive—Sears Vinyl Household Adhesive, General Electric Silicone Rubber Adhesive, RTV-102 or equal.
- g. Base Items—
 - ABS-101 2 1/2" Aluminum Snap-On Base
 - VBS-123 2 1/2" Vinyl Snap-On Base
 - ABS-137 3 1/2" Aluminum Snap-On Base
 - SBS-153 Base Clip
 - ABS-114 2 1/2" Aluminum Recessed Base
 - ABS-115 Base Closure
- h. Batten Items—
 - ABT-104 Batten (vinyl insert)
 - ABT-103 Exterior Corner (vinyl insert)
 - VBT-105 Poly Vinyl Batten Insert (gray) (black)
 - VBT-133 Vinyl Insert (select from TEXTONE Panel colors plus black)
 - ABT-120 LP Batten
 - ABT-124 LP Outside Corner
 - ABT-125 LP Inside Corner

- i. Rail and Trim—
 - ARL-122 Recessed Ceiling Runner
 - ARL-106 Rail
 - ARL-170 Rail Cover
 - ARL-102 Ceiling Trim
 - ARL-146 Drive-In Trim
 - ARL-145 Picture Molding
 - VRL-107 Rail Cap (black) (walnut)
 - SRL-111 Splice Clip (butt joints)
 - SRL-121 Splice Clip (horizontal miter)
 - SRL-134 Splice Clip (horizontal to vertical miter)
 - SRL-108 Rail Clip
- j. Glazing Components—
 - AGL-156 Glazing Rail
 - AGL-168 Glazing Rail Cover
 - AGL-152 Door Frame Glazing Cover
 - AGL-126 Glass Stop A
 - AGL-127 Glass Stop B
 - VGL-110 Glazing Spline (black)
- k. Door Frame Items—
 - ADF-175 Aluminum Door Frame, three-piece, (3'0"x6'8") (3'0"x7'0")
 - ADF-176 Aluminum Door Frame, two-piece, cornice height
 - ADF-180 Aluminum Door Frame, two-piece, ceiling height
 - ADF-131 Snap-In Door Header
 - ADF-109 Jamb Clip
- l. Bank Rail Items—
 - APT-173 Post
 - APT-112 Post Channel
 - APT-174 Pedestal
 - VPT-128 Post Cap (black) (walnut)
 - SPT-113 Post Assembly Channel
 - SPT-136 Post Assembly
 - SPT-171 Post Plate
 - SPT-119 Rail Strut
 - SPT-130 Post Clip
- m. "200 Series" Components—
 - ASD-216 H-Stud
 - ASD-217 Corner Stud

Part 3: execution

3.1 partition erection—100 series

3.1.1 stud system installation

Accurately align all partitions of the type herein specified according to partition layout. Securely anchor floor runners with suitable fasteners, spaced not more than 24" o.c., and at corners and runner ends. On bank rail raised above floor, center bottom runner within Rail ARL-106 and securely fasten assembly to floor through Pedestal APT-174 with a $\frac{3}{8}$ " threaded rod. For bank rail partitions set on the floor, install Rail Struts SPT-119 spaced 8' o.c., 6" from terminals, and securely fasten to floor with two anchors. Install floor runner between struts and securely anchor with DURABOND 200 Adhesive and fasteners spaced 24" o.c.

Securely anchor Ceiling Runner ARL-122, Rail ARL-106 or Glazing Rail AGL-156 and all top runners to ceiling with

suitable fasteners, spaced not more than 24" o.c. and at corners and runner ends.

Position metal studs vertically between top and bottom runners and space at max. 24" o.c. Install metal studs at corners, intersections and partition terminals, and anchor by attaching each stud flange to the runner flange with fastener tool or $\frac{3}{8}$ " USG Brand Screws type S-12 pan head. When necessary, studs may be securely spliced with a minimum 8" nested lap. At partition terminals, install stud with web terminal end and flanges directed into the partition. In bank rail partitions, space studs 16" o.c. when wallboard is to be vertically applied. Locate a stud next to all Rail Struts and fasten to struts with four $\frac{1}{2}$ " type S-12 pan head screws. Securely anchor studs at intersections to abutting walls with screws spaced 12" o.c., and staggered.

3.1.2 door and borrowed light frames

Rough frame door and borrowed light frames to an opening 1" larger than door dimensions with metal studs and runners. Position studs vertically adjacent to door and borrowed light frames where wallboard is attached and anchor securely to top and bottom runners at each opening. Provide sill and header sections fabricated from metal runners above and below borrowed light frames where wallboard is attached. Fabricate from a cut-to-length section of runner with flanges slit and web bent to allow flanges to overlap adjacent vertical studs and securely attach to adjacent studs. Position cut-to-length studs in center above door opening and above and below borrowed light openings at max. 24" o.c. At door openings anchor floor runner with two suitable fasteners at jamb termination. Securely anchor studs adjacent to one-piece door and borrowed frames to jamb and head anchor clips.

3.1.3 wallboard application

Apply gypsum wallboard vertically with edges centered on stud flanges and attach to both top and bottom runners with 1" type S screws spaced 12" o.c. Screw-attach board along vertical edges at third points when using ABT-104 Batten and 12" o.c. with ABT-120 LP Batten. At originating and terminating studs and around door and borrowed light frames, attach board with screws spaced 12" o.c.

Attach center of board to those studs where wallboard is not mechanically attached using DURABOND 200 Adhesive.

On glazed cornice height and bank rail height partitions, wallboard may be horizontally installed in as long lengths as possible.

3.1.4 cornice cap installation

Install Rail ARL-106 horizontally over top of partition as cornice cap. Insert Glazing Rail Cover AGL-168 in Rail ARL-106 over glazed openings and Rail Cover ARL-170 over unglazed openings.

3.1.5 sill cap installation

Install Rail ARL-106 horizontally on top at wainscot portion of glazed ceiling height partition. Miter corners neatly and reinforce with splice clips.

3.1.6 partition terminal installation

a. **Ceiling height partition**—Finish terminal by fitting Rail ARL-106 over end of partition and fasten securely at top and bottom with two $1\frac{1}{4}$ " finishing screws or secure with adhesive spots 24" o.c.

b. **Cornice height partition**—Finish terminal with a continuous Rail ARL-106 fitted over partition and attached at top and bottom with two $1\frac{1}{4}$ " finishing screws or securely attached with adhesive spots 24" o.c. For restrained terminal, extend

rail to ceiling and fasten top by engaging two Rail Clips SRL-108 securely attached to ceiling. Finish open side of rail with Rail Cover ARL-170.

c. Bank rail partition—Finish terminal with a continuous Rail ARL-106 installed horizontally over partition as a top rail and vertically as a terminal. Either neatly butt, miter and reinforce with clips, or cope and bend rails at intersection. When terminal extends above top rail, finish with Rail Cover ARL-170 and Rail Cap VRL-107.

3.1.7 door assembly installation

a. Ceiling height partition—Install three-piece Aluminum Door Frame ADF-175 after partition is completed. Plumb jamb and header sections and fasten rough framing with 1¼" type S screws.

For full-height door openings, trim rough opening at jambs with Aluminum Door Frame ADF-180 sections, plumbed and fastened to rough framing with 1¼" type S screws. Snap Door Header ADF-131 into continuous ceiling runner at door head. Set fixed transom in place and secure to door header at ceiling line with pins and to jambs with 1⅝" type S trim head screws.

b. Cornice height partition—Trim rough door opening at jambs with continuous Aluminum Door Frame ADF-176 sections, plumbed and fastened to rough framing with 1¼" type S screws. Snap Door Header ADF-131 into Rail ARL-106 at door head.

3.1.8 borrowed light assembly installation

Trim borrowed light openings with Glazing Rail AGL-156 or Glazing Rail Cover AGL-168 for vertical and head sections and Rail ARL-106 for horizontal sill sections.

Snap Glazing Rail AGL-156 and Glazing Rail Cover AGL-168 for intermediate mullions. Position two Rail Clips SRL-108 to engage each end of Glazing Rail, and screw to cap and sill with two ⅜" pan head screws per clip.

3.1.9 glazing corner post installation

Install Post APT-173 plumb and fasten to Rail ARL-106 (and Glazing Rail) with Post Assembly SPT-136 and Post Plate SPT-171. Where glazing extends to ceiling, fasten Post APT-173 at sill and head with Post Clip SPT-130. Cut Post Channel APT-112 to length and insert in groove in Post APT-173.

3.2 partition erection—200 series

Align partitions accurately according to partition layout. Securely anchor one-piece 2½" Recessed Base ABS-114 with suitable fasteners spaced max. 24" o.c. and at corners and runner ends. Securely anchor Recessed Ceiling Runner ARL-122 to ceiling with suitable fasteners 24" o.c.

Position USG Metal Studs vertically between top and bottom runners, midway between joints and at intersecting walls and partitions. Anchor studs to abutting walls and partitions with suitable fasteners spaced 24" o.c. Install H-Stud ASD-216

vertically at panel joints and Corner Stud ASD-217 vertically at corners.

Cut face panels accurately and apply vertically engaging runners at ceiling and floor and H-Studs or Corner Studs at vertical edges. Attach panels to metal studs at abutting partitions with 1" type S screws spaced 12" o.c. and to intermediate metal studs with DURABOND 200 Adhesive.

Note to architect: Rail ARL-106 or Ceiling Runner ARL-122 may be used at wall intersections; Aluminum Base ABS-101 or ABS-137 in conjunction with USG Metal Runner may be used at floor. For cornice height partitions, borrowed light or other glazing treatment, select appropriate specification from 100 series partition erection, above.

3.3 accessory application

a. Aluminum Ceiling Trim ARL-102—Install to ceiling runner and studs where indicated with USG Metal Lock Fastener tool spaced 24" o.c.

b. Drive-in Ceiling Trim ARL-146—Install where indicated on the drawings *after* wallboard is erected.

c. Picture Mold ARL-145—Apply horizontally at ceiling line where indicated, with 1" type S screws spaced 12" o.c.

d. Base Clips SBS-153—Install 24" o.c. and within 2" of corners, partition terminals and base splices, with 1" type S screws.

e. Aluminum Base—Install where indicated. Notch to a neat miter in forming exterior corners, evenly butt at interior corners and hold in place by engaging SBS-153 Base Clips. In continuous runs butt ends evenly and splice with a Base Clip.

f. Interior Corner ABT-125—Install in one piece over wallboard at all interior corners.

g. Exterior Corner ABT-103—Install in one piece over wallboard at all exterior corners with 1" type S screws spaced 12" o.c., or adhesively apply ABT-124.

h. Batten ABT-104—Install to cover screw heads at vertical board joints and at intermediate studs when adhesive attachment is not used. Fasten with 1" type S screws spaced 12" o.c., or adhesively apply ABT-120.

i. Batten Insert VBT-105 or VBT-133—Install in Battens, Exterior and Interior Corners, Picture Moldings and Door Frames, where required.

j. Post Cap VPT-128—Adhesively attach to ends of Post APT-173 on bank rail partition.

k. Glass Stops AGL-126 and AGL-127—Provide as required for glazing.

l. Rail Cap VRL-107—Adhesively attach to ends of Rail ARL-106 on bank rail partition.

m. Glazing Spline VGL-110—Provide as required for glazing.

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NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

22 - floor - K1319-63-64

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Mov VAUGHAN WALLS pre-chased partn—spec 5/8" USG gypsum wallbd face panels lamin to spec 1" gypsum core strips placed to form panel joints wt 7 width 2 1/4"	U of C 11-1-66 (f) TL-64-212 (s)		36	150	Aluminum ceiling and floor runners. Excellent corridor or tenant partition	a-1291
1 hr.	Mov VAUGHAN WALLS standard solid partn—spec 5/8" USG gypsum wallbd face panels lamin to spec 1" USG gypsum core units 24" wide wt 9 width 2 1/4"	T-1235-OSU (f) U of C 5-24-65 (f) TL-64-213 (s)		36	166	Aluminum trim with steel inserts used in U of C fire test. Fine corridor, tenant wall	a-1291
1 hr.	Mov VAUGHAN WALLS pre-chased sound wall—spec 5/8" USG gypsum wallbd face panels lamin to 5/8" gypsum base layer panels—1/2" gypsum core strips placed to form panel joints—2 rows 1 1/2" thick—alum trim wt 10 width 3"	U of C 8-12-68 (f) WEAL 67-131 (s)		45	175	Tenant wall with excellent space-saving features	a-1291
2 hrs.	Mov VAUGHAN WALLS pre-chased dbl sound wall—spec 5/8" USG gypsum wallbd face panels lamin to 5/8" gypsum core strips placed to form panel joints—2 rows 1 1/2" thick spaced 1 1/2" or 3" apart—alum trim wt 13 width 5 1/2" or 6"	UL Des 24-2 hr (f) TL-65-72 (s) TL-64-189 (s)		50 52 45	250 230	Ideal for library, conference rooms. 50 stc based on 6" width with wool; 45 stc on 5 1/2" width without wool	a-1291

description

VAUGHAN WALLS® are high-performance interior partitions for office, industrial and school buildings that combine movable wall flexibility with permanent wall appearance and service. They are job-laminated from special USG® gypsum panels, regular or fire-rated core, and architectural aluminum runners and trim. These high-strength, versatile assemblies offer 1 and 2-hour fire-resistance ratings and up to 52 STC. Also available is a 45-min. fire-rated ceiling height door frame assembly with aluminum jamb and architectural wood door and transom that bears an Underwriters' Label for use in fire rated partitions (see table above).

Four basic walls are available for use either singly or in combination:

- (1) **Solid core wall**, 2 1/4" thick, excellent corridor partition or tenant wall.
- (2) **Chase (semi-solid core) wall**, 2 1/4" thick, corridor or tenant wall, preferred when electrical or telephone raceways are required.
- (3) **Sound wall**, 3" thick, excellent party or privacy wall for library and conference rooms. Also as tenant wall, may be finished on second side when space is leased.
- (4) **Double sound wall**, 5 1/4" to 6 3/4" thick, maximum sound isolation for conference, music or recording rooms.

The special gypsum panels are produced to strict Vaughan specifications. They provide walls with either modular V-joints or continuous smooth surfaces to which a wide range of materials, paint, wood veneers, vinyl, fabric or wallpaper may be applied for unlimited architectural expression. Aluminum trim, buffed and satin anodized (C-22-A31-M31 or one of

the lightfast anodic colors) provides an attractive accent to partition perimeters.

VAUGHAN WALLS are available in ceiling, cornice and bank-rail heights and have the flexibility of combining glass with all of these types. No studs or intermediate posts are necessary. Without these restrictions, door openings may be cut and walls intersect anywhere to allow complete freedom in space planning and design. Electrical and telephone services are easily carried vertically in chaseways through the core; outlets readily placed where needed. These factors assure architects and owners that all partitions are relocatable to meet future traffic patterns and space delineation.

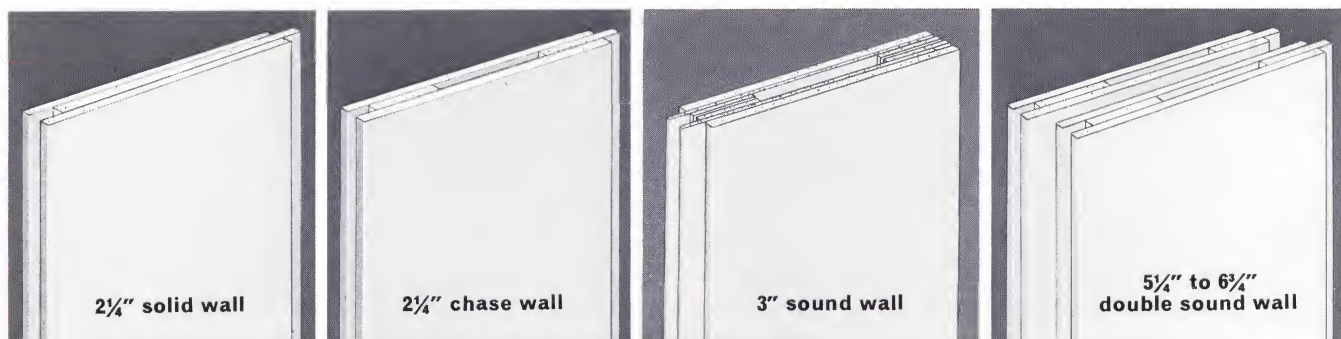
Installation is performed by a nationwide network of licensed VAUGHAN WALLS contractors who are carefully selected and trained for quality craftsmanship in Vaughan's specialized methods. These contractors provide complete projects from consultation to finished interiors for original installations and relocation to meet future needs. They will assist in preparing architectural details and furnish shop drawings. Their stocks of aluminum extrusions, together with quick delivery of gypsum panels from strategically located U.S.G. plants, make VAUGHAN WALLS systems readily available.

function and utility

Sound Control—The sound transmission loss rating of the standard 2 1/4" VAUGHAN WALL is better than that possible to obtain in most movable partitions without costly modifications. VAUGHAN Sound Walls further improve isolation.

Fire Resistance—1 and 2-hour fire-resistance ratings have been established for VAUGHAN WALLS partitions with special USG gypsum panels (see table above).

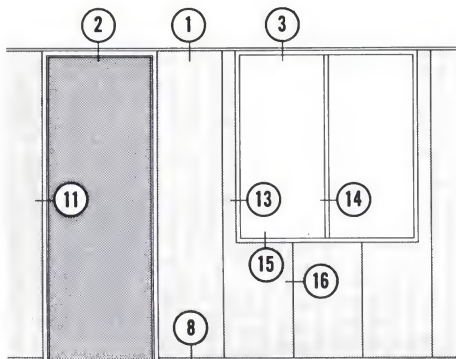
(continued on page 7)



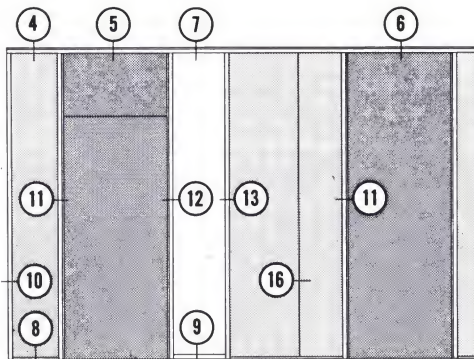
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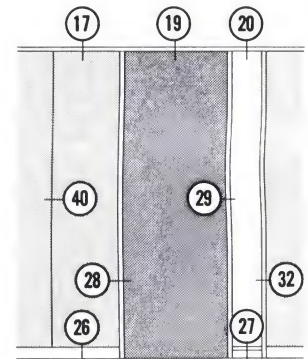
elevations & details



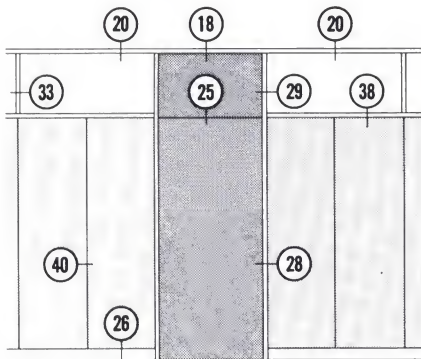
ceiling height
full height door



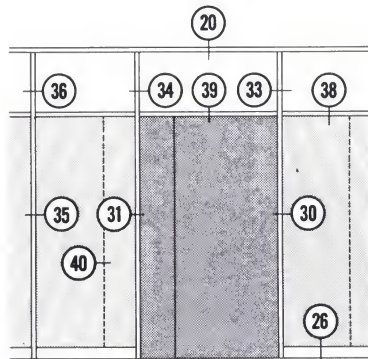
ceiling height
door w/fixed transom



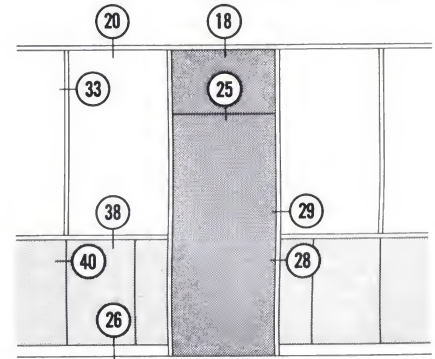
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full height door
adjoining glass panel



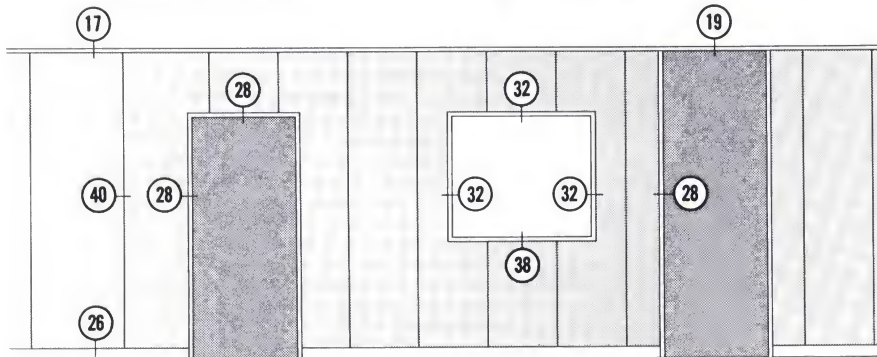
ceiling height
door w/fixed transom
glass above cornice



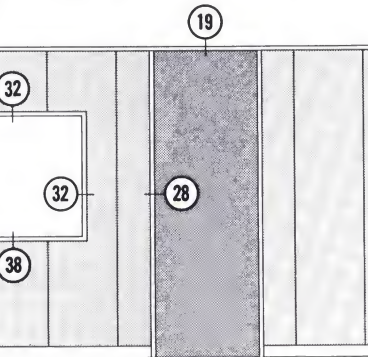
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door w/matching panel
glass above cornice—v-joints taped



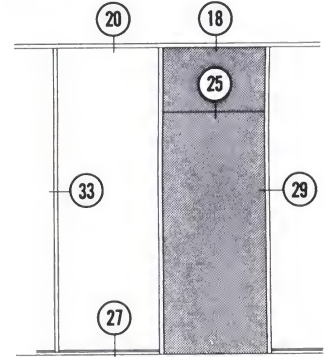
ceiling height
door w/fixed transom
glass above gypsum



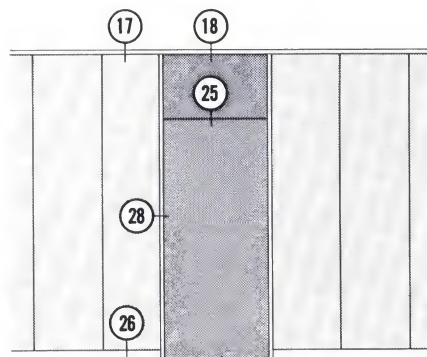
ceiling height
door in gypsum walls



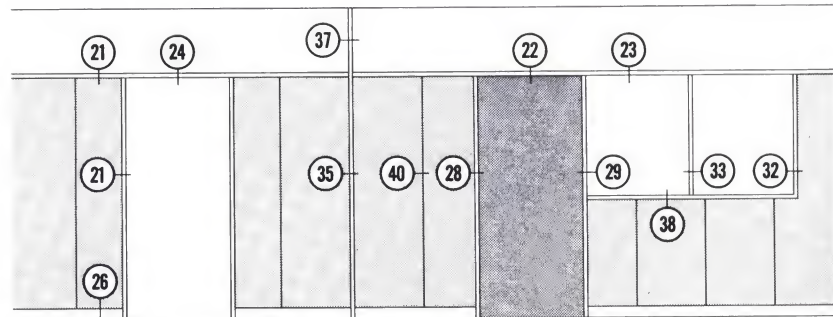
ceiling height
full height door-gypsum walls



ceiling height
door w/fixed transom
full height glass panels



ceiling height
door w/fixed transom-gypsum walls

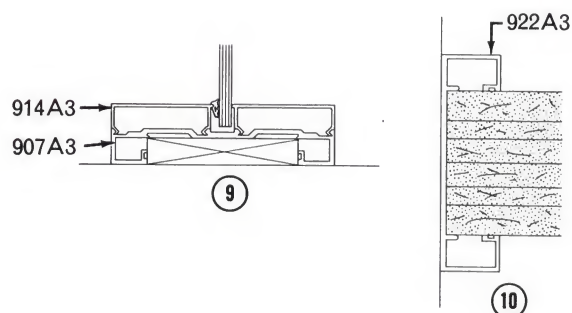
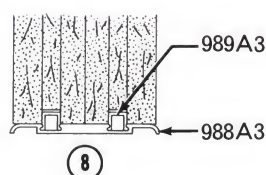
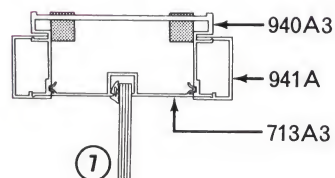
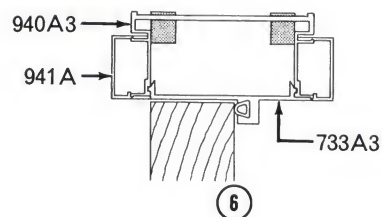
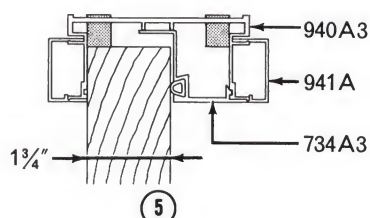
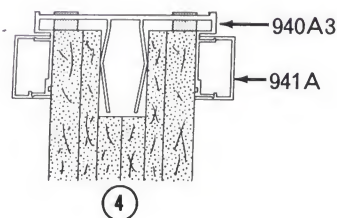
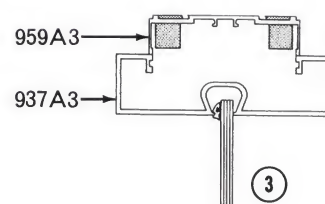
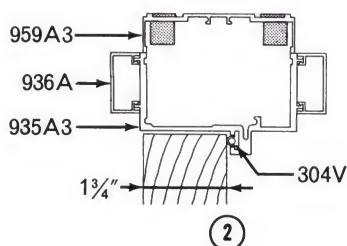
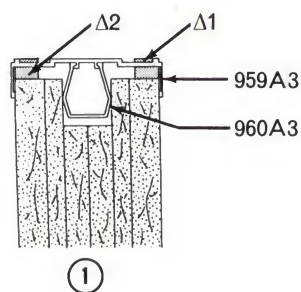


door height—cased opening

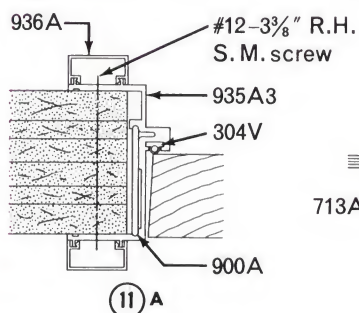
door height—gypsum with glass

details/3" partition Δ^3

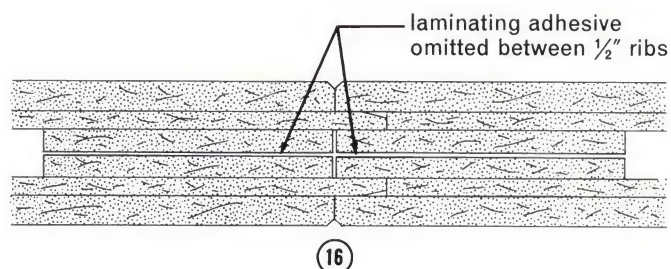
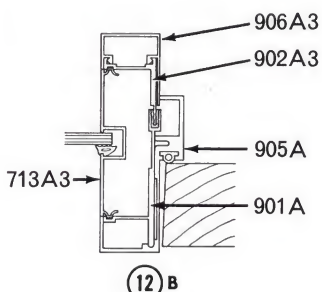
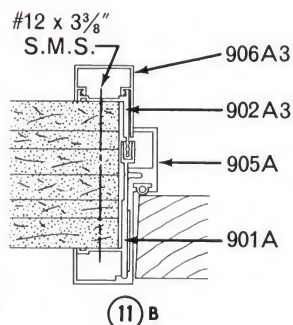
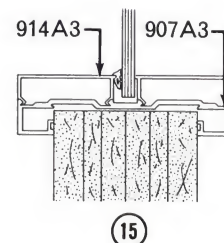
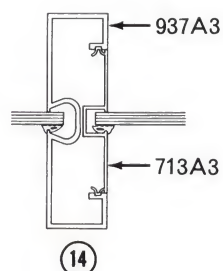
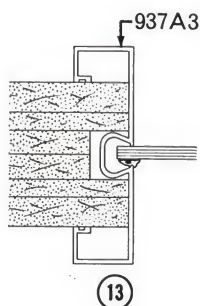
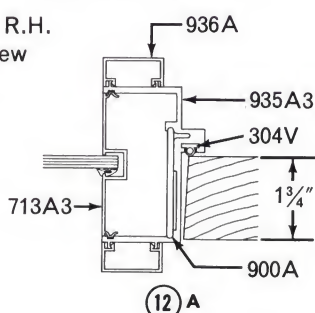
scale: 3" = 1'-0"



(11) choice of a or b



(12) choice of a or b



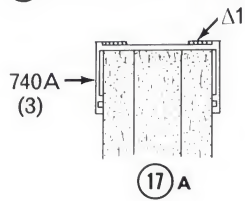
$\Delta 1$ — $\frac{1}{8}$ " Polyurethane Gasket $\Delta 2$ — $\frac{1}{2}$ " Polyurethane Gasket
 Note: Substitute 305V door mute for 304VR on butt side

$\Delta 3$ —See page 4 for other 3" sound wall profiles

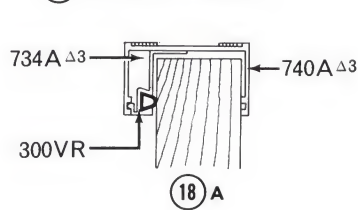
details/2¼" partition

scale: 3" = 1'-0"

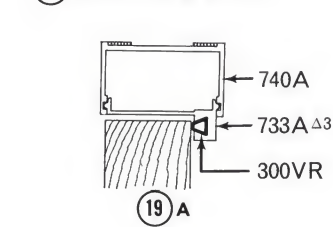
(17) choice of a, b, c or d



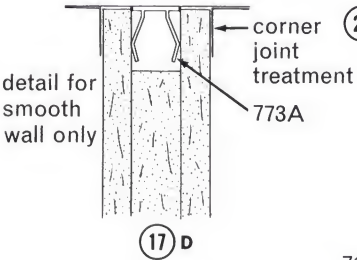
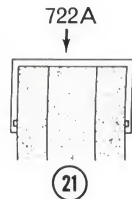
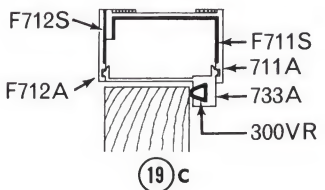
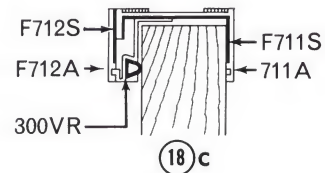
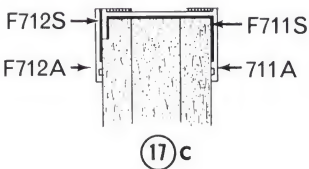
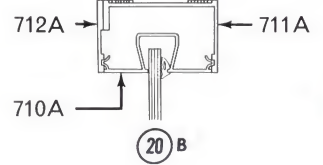
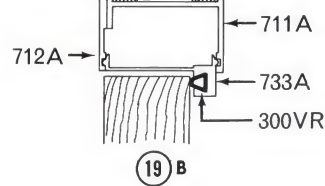
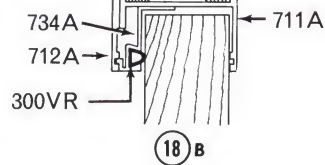
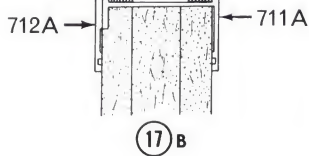
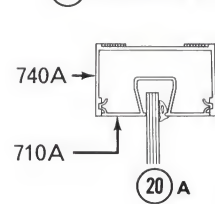
(18) choice of a, b or c



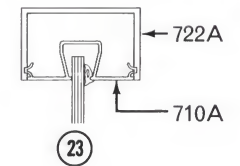
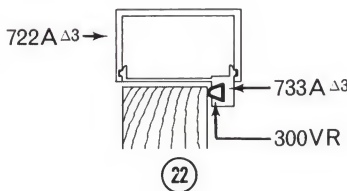
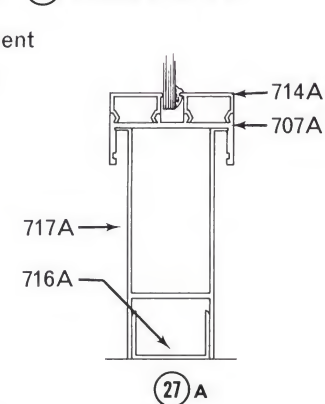
(19) choice of a, b or c



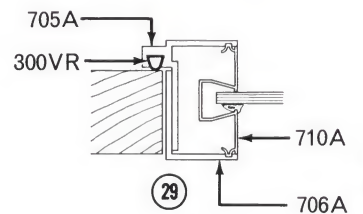
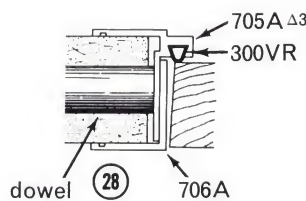
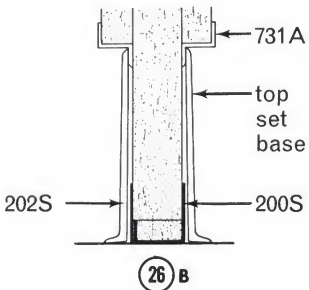
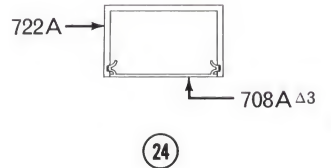
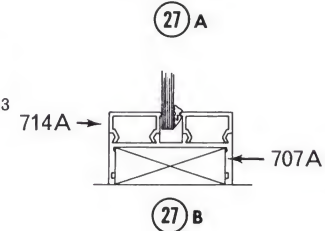
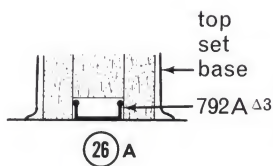
(20) choice of a or b



(27) choice of a or b



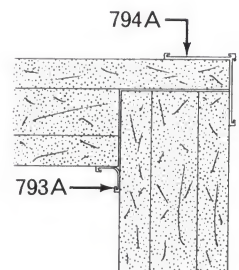
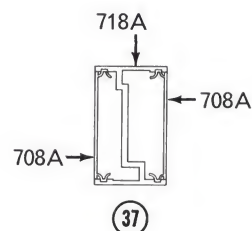
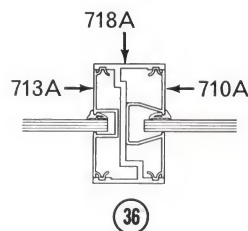
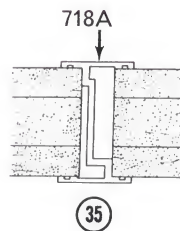
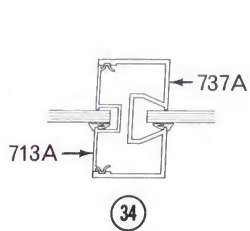
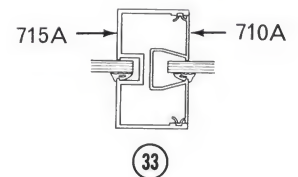
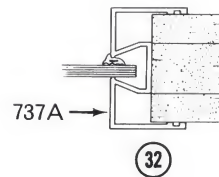
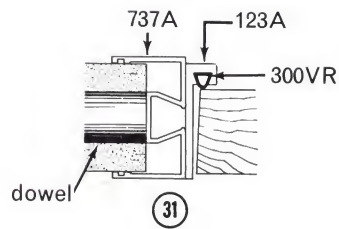
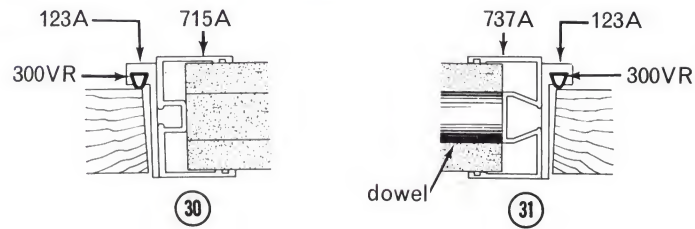
(26) choice of a or b



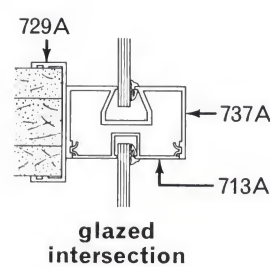
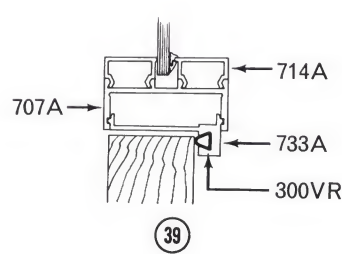
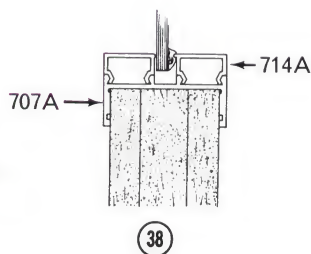
Δ1—1/8" Polyurethane Gasket

Note: Substitute 301V door mute for 300VR on butt side. Δ3—Also available for 3" sound wall

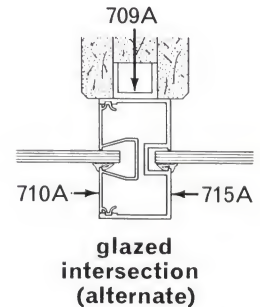
details/2¼" partition



corner intersection



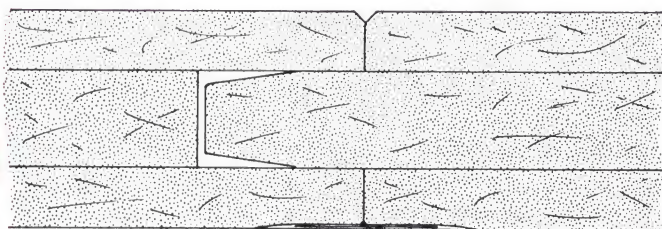
glazed intersection



glazed intersection (alternate)

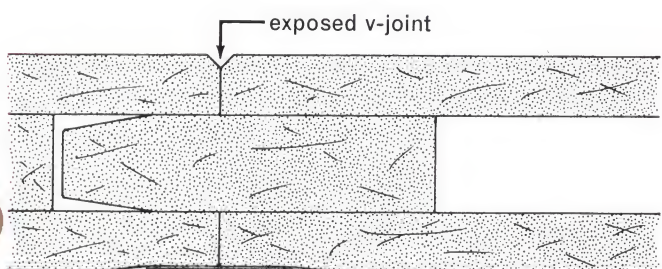
(40)

choice of a or b finished

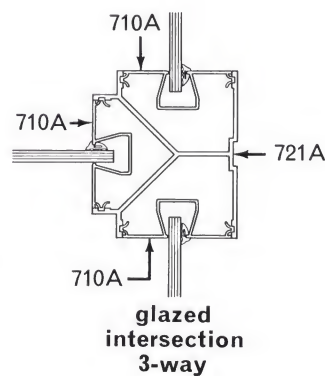


(40) A solid wall

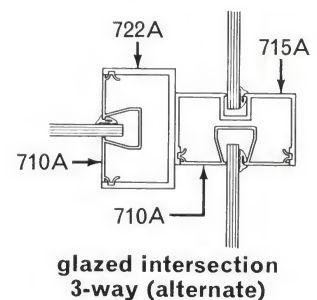
taped smooth surface



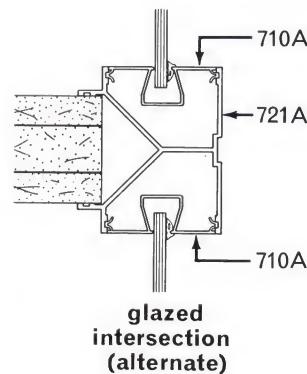
(40) B chase wall



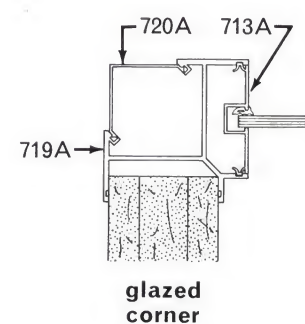
glazed intersection 3-way



glazed intersection 3-way (alternate)



glazed intersection (alternate)

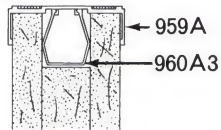


glazed corner

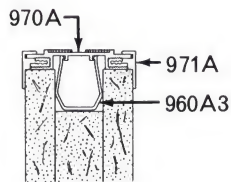
details/900 accent series

scale: 3" = 1'-0"

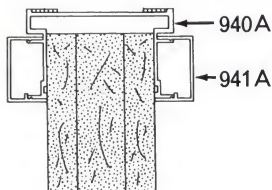
⑪ choice of a, b or c



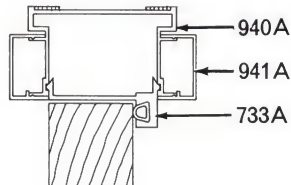
⑪ A



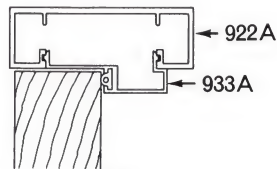
⑪ B



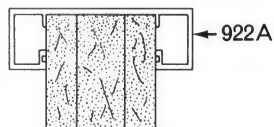
⑪ c



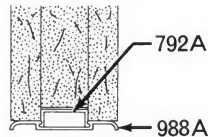
⑱



⑳

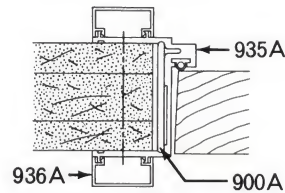


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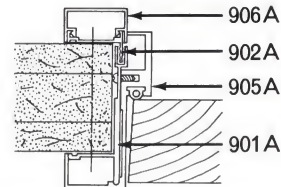


⑧

⑳ choice of a or b

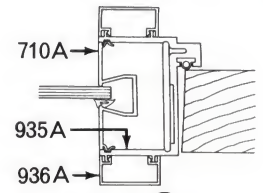


㉔ A

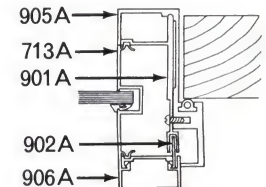


㉔ B

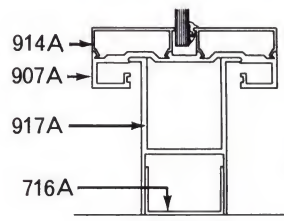
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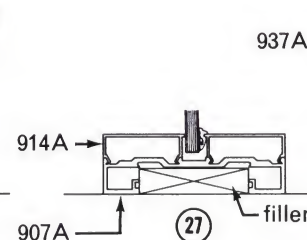
㉔ A



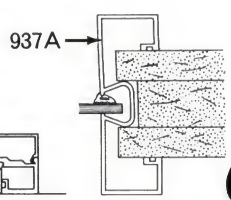
㉔ B



㉗

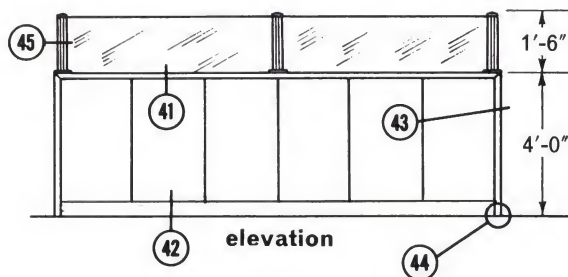


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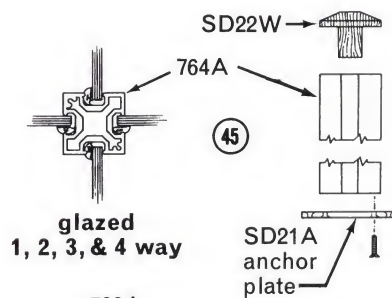


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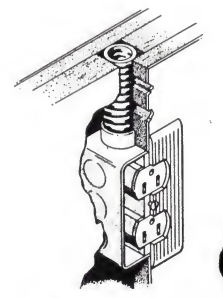
details/space divider



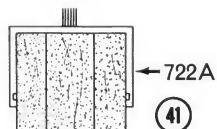
elevation



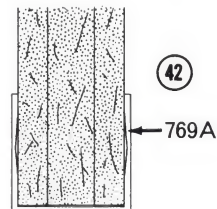
glazed
1, 2, 3, & 4 way



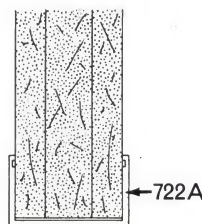
electrical outlet



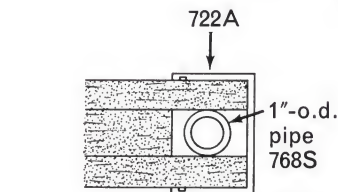
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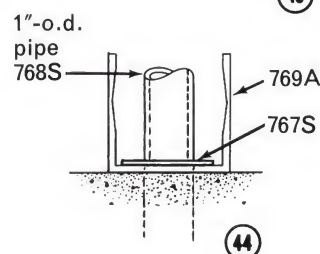
④②



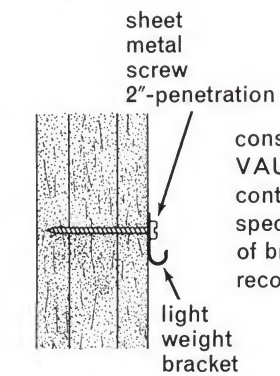
④② ALT.



④③



④④



fixture attachments

consult your
VAUGHAN WALLS
contractor for
specific type
of bracket
recommendation

function and utility (continued from page 1)

Appearance—VAUGHAN WALLS have the visual qualities of permanence: handsome architectural aluminum trim with either modular V-joints or smooth continuous surfaces that offer a complete latitude of finish selection.

Performance—VAUGHAN WALLS are sturdy and solid like fixed partitions; will support bookshelves and fixtures. They offer fire and sound characteristics equivalent to permanent partitions, yet, when space requirements change, VAUGHAN WALLS partitions may be relocated promptly on short notice with minimum disturbance.

Service—All components of VAUGHAN WALLS are ready for immediate installation. No inventory by building owner is required. Fast erection permits early occupancy. Unexpected changes in layout are easily handled without costly delay in job progress.

Economy—Job-fabricated from low-cost panel materials. Easily and speedily erected using Vaughan's time-tested methods and labor-saving installation devices. Cost is usually much less, for equivalent fire and sound performance, than other movable partitions. Low maintenance costs provide extended savings. When partitions are moved, materials are in many cases virtually 100% salvageable.

limitations

1. VAUGHAN WALLS partitions are intended to be used only as non-load bearing walls.
2. Maximum height is 14' for solid wall; 12' for chase wall and sound wall.
3. Maximum unsupported run for less than ceiling height and glazed cornice height partition is 14'.
4. VAUGHAN WALLS should not be used where normally exposed to moisture or excessive humidity.

specifications

note to architect

The most expedient way to obtain additional information on fire ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices, a VAUGHAN WALLS licensed contractor or VAUGHAN WALLS, INC., 11681 San Vicente Blvd., Los Angeles, Calif. 90049.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.1.1 work included

The partition contractor shall furnish all labor, materials and equipment necessary to complete all VAUGHAN WALLS: laminated gypsum panels, aluminum components, glass sections including glass and glazing, door frames, window frames, doors, transoms, wood veneers, vinyl wall covering, painting of walls and finishing of wood and, upon request, other items (topset base and finish hardware) as may be required to complete the VAUGHAN WALLS installation.

1.1.2 work not included

- a. Ceilings and construction thereof.
- b. Electrical and plumbing work.
- c. Hoisting facilities including operating engineer.

1.2 qualifications

All Movable VAUGHAN WALLS shall be installed by a VAUGHAN WALLS Licensed Contractor employing skilled craftsmen under close supervision of experienced foremen who have had on-the-job training by VAUGHAN WALLS, INC.

1.3 submittals

Partition contractor shall submit for architect's approval detail drawings of all metal components showing attachments to adjacent work and to each other when so required by the architect or owner, or a full-size mock-up when the job warrants.

1.4 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.5 environmental conditions

Temperatures within the building shall be above a constant minimum of 55° during lamination and erection of partition panels. When required, heat shall be furnished by (building owner) (general contractor). Erection of partition panels shall not begin until erection of exterior walls and glazing or temporary covering of exterior openings provide complete protection from outside weather.

Part 2: products

2.1 partition panels—jig-laminated to form (24" or 30" wide panels, nom.) (widths designated for the job).

a. **2¼" chase wall panels**—semi-solid, VAUGHAN WALLS 1" x 6" (nom.) Gypsum Coreboard strips laminated to ⅝" VAUGHAN WALLS (regular) (fire-rated) Gypsum Panels.

b. **2¼" solid panels**—VAUGHAN WALLS 1" Gypsum Coreboard faced both sides with ⅝" VAUGHAN WALLS (regular) (fire-rated) Gypsum Panels.

c. **3" sound wall panels**—⅝" thick VAUGHAN WALLS (regular) (fire-rated) Gypsum Panels laminated to ⅜" BAXBORD* Gypsum Backing Board with ½"x6" Gypsum Coreboard strips laminated to backing board at panel joints.

d. **5¼" double sound wall panels**—⅝" x 6" (nom.) VAUGHAN WALLS Coreboard strips faced both sides with ⅝" VAUGHAN WALLS (regular) (fire-rated) Gypsum Panels.

2.2 adhesive—VAUGHAN WALLS Brand W-300 Non-flammable Adhesive, W-280 Adhesive or Contact Adhesive as approved by VAUGHAN WALLS, INC.

2.3 metal components—manufactured to standards approved by VAUGHAN WALLS, INC.

sound transmission loss—db

test no.	method	band center frequency—Hz																				STC	
		125	160	175	200	250	315	350	400	500	630	700	800	1000	1250	1400	1600	2000	2500	2800	3150		4000
TL 65-72	Lab	37	39	—	41	37	42	—	49	54	55	—	56	56	57	—	58	56	59	—	60	62	52
		37	—	40	—	37	—	46	—	54	—	56	—	56	—	57	—	56	—	59	—	62	50
TL-64-189	Lab	36	—	35	—	35	—	39	—	45	—	50	—	51	—	56	—	53	—	56	—	57	45
WEAL 67-131	Lab	22	27	—	31	35	39	—	43	43	45	—	46	48	47	—	46	49	52	—	55	56	45
TL-64-212	Lab	31	—	31	—	24	—	35	—	38	—	37	—	41	—	40	—	38	—	41	—	45	36
TL-64-213	Lab	34	—	35	—	34	—	37	—	37	—	39	—	38	—	36	—	39	—	43	—	45	36

a. Aluminum Extrusions

Material: KB 45.

Nom. thickness: .125", except glazing closure plates may be combination .094" and .125".

Exposed surfaces: buffed and stain anodized, C-22-A31-M31 Finish unless VAUGHAN COLOR, KALCOLOR or DURANODIC Finish is specified.

Unexposed surfaces: mill finish.

Tolerances: commercial.

b. Fasteners—cadmium-plated or plated to match 10B or other specified colors (for exposed fasteners only).**c. Steel Runners**—roll-formed from min. 18-ga. paint lock type steel.

2.4 finishing accessories—reinforcing tape, joint compounds and metal corner beads as manufactured by United States Gypsum Company or equal.

2.5 finishes**a. Wood**—(1/8" architectural veneer) (VAUGHAN WALLS WOOD WRAP Veneer pre-wrapped on face panels). (Specify type of finish desired.)**b. Vinyl**—Supported vinyl wall coverings as selected from VICRTEX or B. F. Goodrich KOROSEAL sample books (wrapped on face panels at job site prior to erection) (factory-applied to face panels) (applied as a smooth continuous surface after face panel erection).**c. Paint**—One coat of SHEETROCK* Sealer, and one coat of GRAND PRIZE* Paint or one coat of flat oil paint, or equal.**Part 3: execution****3.1 installation**

a. Partitions—Lay out partitions accurately and securely anchor floor and ceiling runners. Such attachment shall assure complete security of the partition and future removal and

relocation without excessive damage to the floor or ceiling construction.

b. Gaskets—Install foam type polyurethane gaskets between all ceiling runners and ceiling materials. In sound walls, install gaskets between all runners and VAUGHAN WALL Panels as detailed.

c. Partition Panels—Form and laminate in special jigs to insure a constant dimension at the tongue and groove. Offset coreboard from face panels to form a tongue and groove 1 1/2" deep. Install panels in floor and ceiling runners to form tight joints with true vertical and horizontal alignment. Set laminated double sound wall panels 1 1/2" apart to form wall 5 1/4" wide.

d. Aluminum Door Frames—Assemble frames plumb and square. Fasten 700 Series frames with wood screws into 1" x 4" long dowels set into coreboard; use five dowels per jamb. Screw-attach 900 Series frames through the panels. Anchor bottom of frames to floor runner.

e. Extrusions—Use maximum length sections and install splice plates and angles as detailed to reinforce joints. Cut ends and miters accurately and clean to fit adjacent parts neatly.

f. Joint Compound—Apply to beveled joints of panels, to insure proper bridging of paint. Wipe excess cement from joint, leaving a true "V" bevel.

g. Metal Corner Bead—Install at all external corners. Apply at least two coats of joint compound over beads and feather each coat out onto panel.

h. Tape and Joint Compound—Apply according to manufacturer's directions to all internal corners and intersections where flush finishing is desired or metal trim is not specified.

i. Electrical Outlets—Position outlets as detailed; coordinate with the electrician. For solid walls, chase the one-inch panel during job-lamination, for electrical wiring and outlet boxes.

j. Finishes—Apply wood veneer and vinyl wall covering using adhesive approved by VAUGHAN WALLS, INC. Apply paint according to manufacturer's directions.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG, BAXBORD (gypsum wallboard); GRAND PRIZE, SHEETROCK, (paint products). VAUGHAN WALLS is Reg. U.S. Pat. Off. by Vaughan Interior Walls, Inc.

NOTE: Since methods and conditions of application and use are beyond the control of the United States Gypsum Company, any warranties of FITNESS and MERCHANTABILITY, as well as any other warranties, express or implied, made in connection with any components sold for use in VAUGHAN WALLS systems, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS such components are erected, used and applied in strict accordance with applicable directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Mov ULTRAWALL Drywall Partn—concealed "H" studs 24" o.c.— $\frac{3}{4}$ "x24" bevel edge FIRECODE panels—joints unfin wt 7 width $3\frac{3}{8}$ "	U of C 8-18-67 (f) TL-69-252 (s)		36	186	Versatile movable partn.—variety of style combinations	a-1301
N/A	Mov ULTRAWALL Drywall Partn—concealed "H" studs 24" o.c.— $1\frac{1}{2}$ " THERMAFIBER sound atten blkts— $\frac{3}{4}$ "x 24" bevel edge panels—joints unfin wt 7 width $3\frac{3}{8}$ "	TL-69-259 (s)		44	180		a-1301
N/A	Mov ULTRAWALL Drywall Partn—concealed "H" studs 24" o.c.— $1\frac{1}{2}$ " THERMAFIBER sound atten blkts— $\frac{3}{4}$ "x 24" bevel edge panels one side—double layer opp side with $\frac{3}{4}$ " Z-Splines betw layers—joints unfin—perim caulked—painted wt 12 width $4\frac{1}{8}$ "	4p. 8. TYG 97 TL-70-198 (s)		50	270	Ideal choice for maximum sound isolation	a-1301

description

The ULTRAWALL Movable Partition—United States Gypsum's new E-Z WALL system—is a non-load bearing, flush-panel-type construction, $3\frac{3}{8}$ " thick, with four basic components. This simplified design is available in ceiling, cornice or bank rail height.

The partition is constructed of strong, incombustible USG® gypsum panels set in continuous runners and held in place with concealed studs spaced 24" o.c. The ULTRAWALL panels have edges beveled and integrally grooved to engage the stud. They are $\frac{3}{4}$ " thick by 24" wide, mill cut to stock lengths and available in a choice of finishes—mill-laminated vinyl-faced panels or plain panels ready for decoration. Openings for door and borrowed lights are neatly formed and trimmed flush with ULTRAWALL extruded aluminum accessories. All exposed aluminum members are etched and anodized a neutral gray finish, 204-R1. Other widths to 30" available for special modules. Contact local U.S.G. sales office for specific information.

ULTRAWALL Movable Partitions are installed by experienced partition contractors.

function and utility

These modern movable partitions are designed for sound and space control in remodeling or in all types of new commercial, industrial, and institutional construction. They fit all standard ceiling grid modules, and offer all the advantages of permanent partitions, plus ease of relocation and the following features:

Economy—Multi-purpose components assure faster, easier initial assembly, and relocation. Low maintenance expense provides long-range economy.

Versatility—Four separate stud systems meet widest range of requirements: (1) Standard H-Stud installs fastest at lowest cost, (2) T-Stud for independent erection of both sides of partition, (3) T/C Stud combination for independent erection of both sides and stud cavity accessibility on one side, (4) C-Stud for independent erection, accessibility both sides.

Sound Control—ULTRAWALL construction, exclusive of openings, has a 44 sound transmission class (STC) with $1\frac{1}{2}$ "x24" THERMAFIBER* Sound Attenuation Blankets inserted in the partition cavity. This same partition with an additional layer of panels, attached to one side with Z-Splines, attains 50 STC. The standard partition, without blankets, attains a 36 STC.

sound transmission loss—db

test no.	method	$\frac{1}{2}$ octave band center frequency—Hz																STC
		125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000	
TL-69-252	Lab	16	20	23	26	28	32	36	40	43	43	43	35	35	39	43	47	36
TL-69-259	Lab	25	32	35	39	42	45	48	50	51	50	48	42	40	42	47	50	44
TL-70-198	Lab	30	33	32	37	43	46	50	54	56	58	59	57	53	52	55	58	50

Easy Maintenance—Vinyl-faced ULTRAWALL panels, etched and anodized aluminum members, and recommended vinyl top set base provide easy maintenance. Optional plain ULTRAWALL panels may be painted and washed repeatedly.

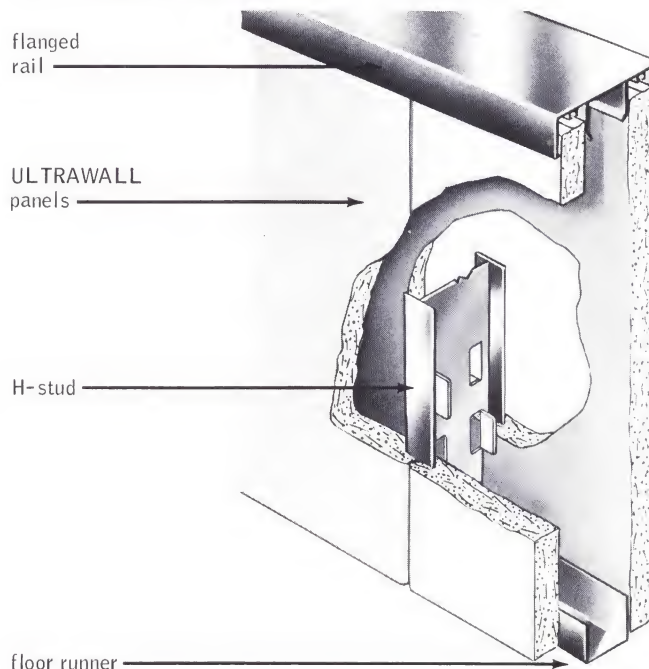
Neat Appearance—Structural attachments concealed within partition—no visible fasteners are used.

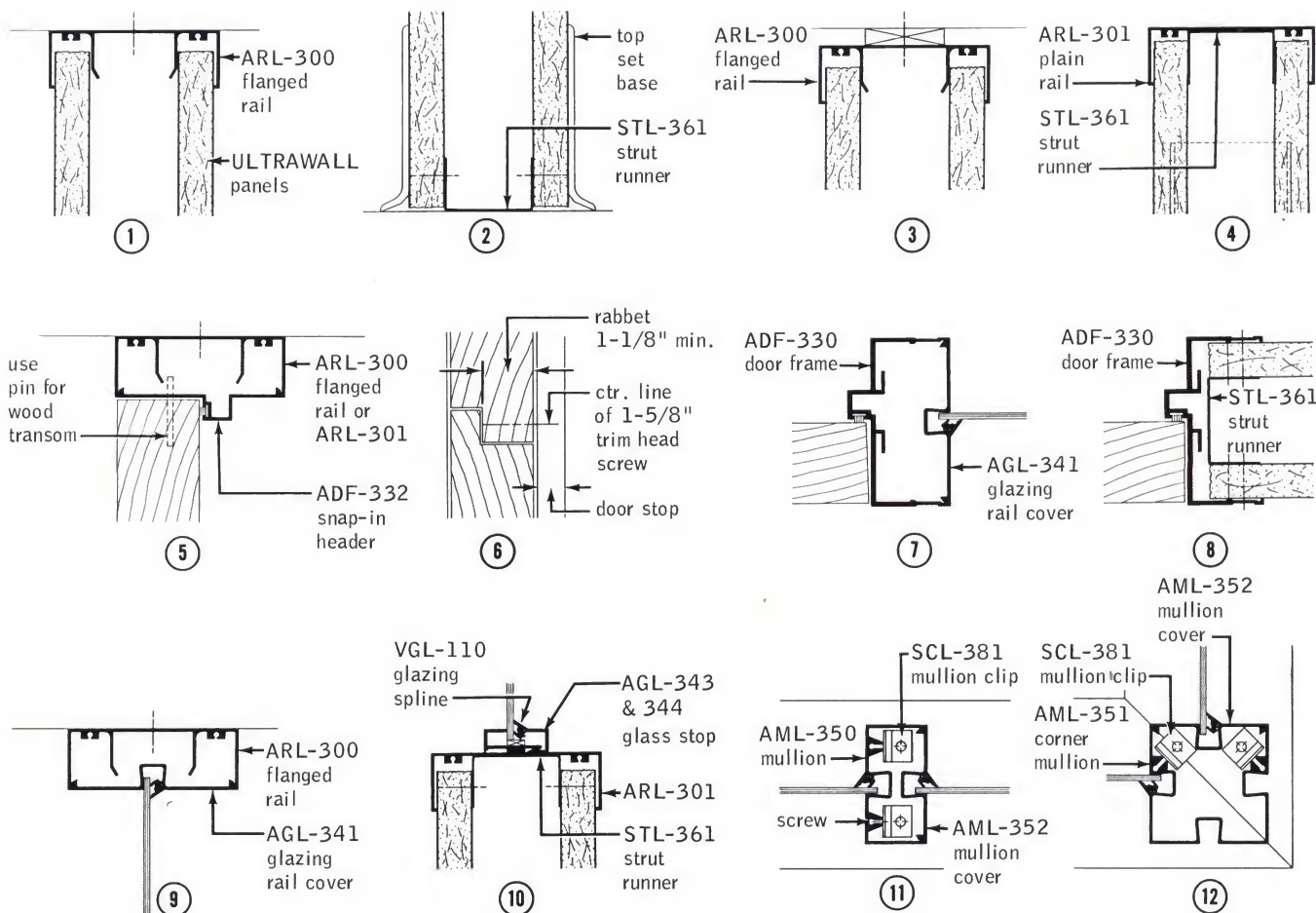
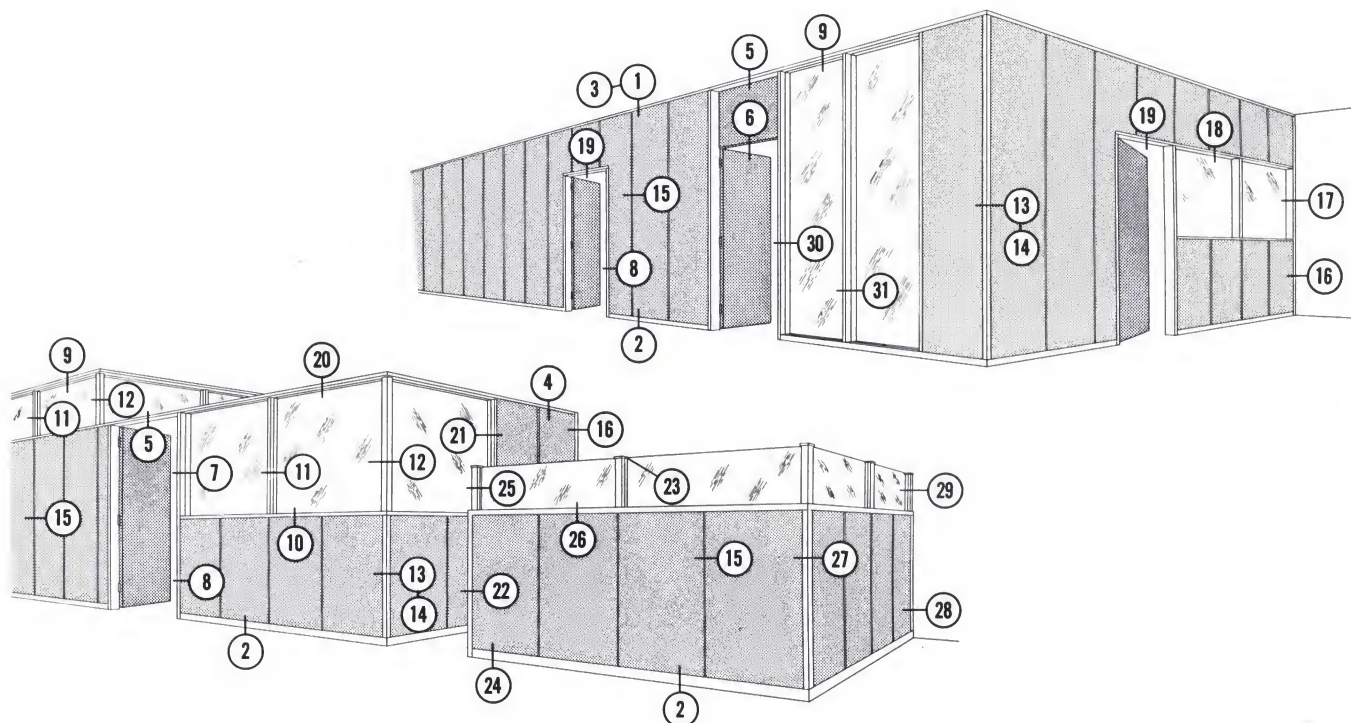
Fire Protection—Fire-resistant gypsum board panels; every component part is incombustible. Available in 1-hr. fire rated floor-to-ceiling partition using standard components.

limitations

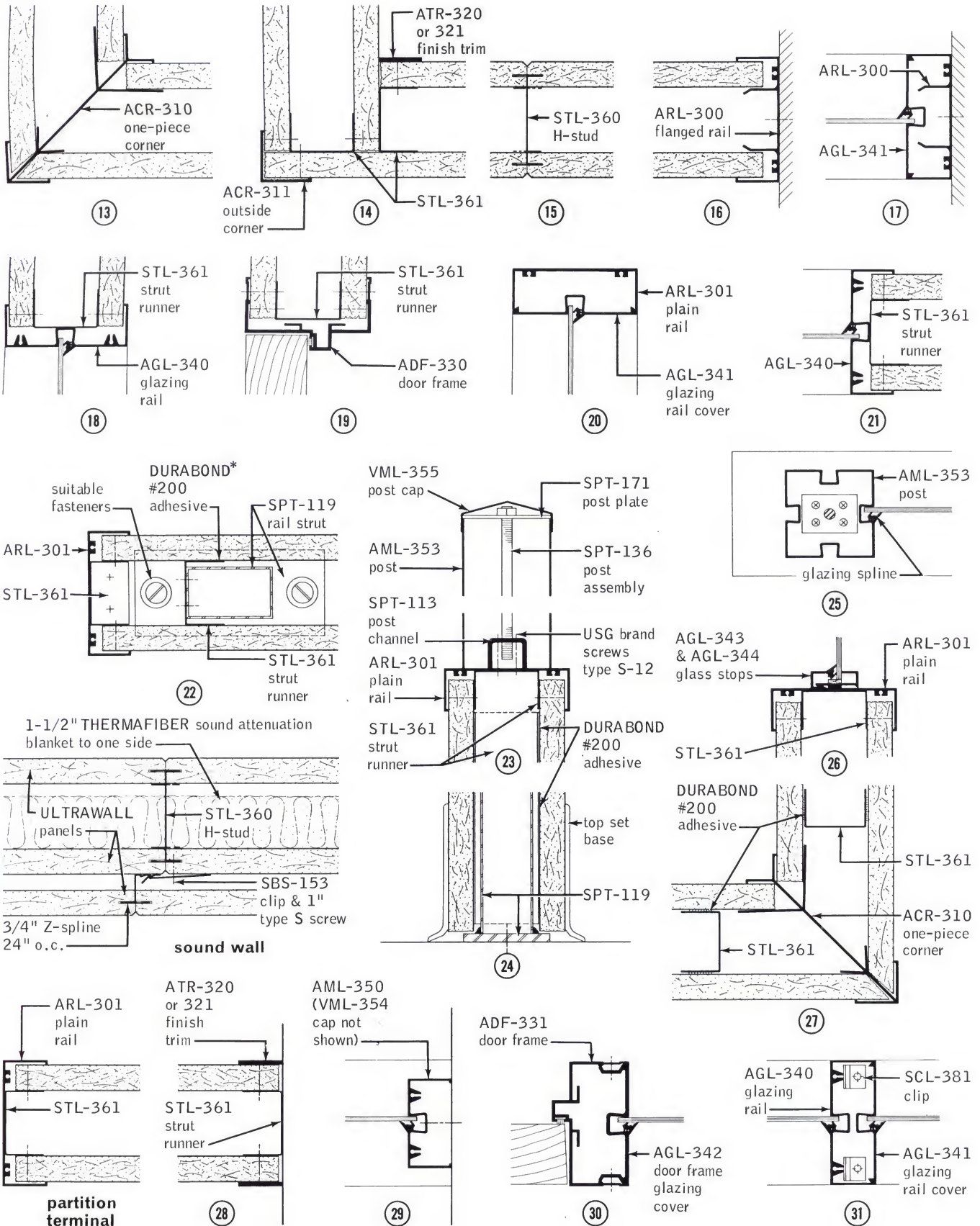
1. Non-load bearing.
2. Not recommended where exposed to excessive moisture.
3. Limiting height: 12' for Ceiling Height Partitions; 48" for unglazed Railing Height. When the rigidity of a permanent partition is desired, maximum height is 10' and perimeter restraint must be provided.
4. Limiting unrestrained length between supports of Cornice Height Partitions, including those with door openings joined by continuous top rail, must not exceed 15'-0".

The ULTRAWALL partition construction is covered by Patent No. 3,027,605.

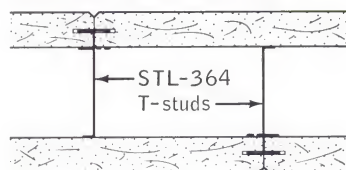




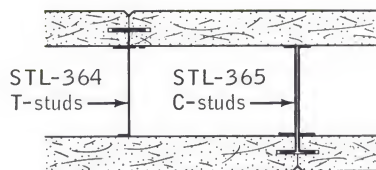
details



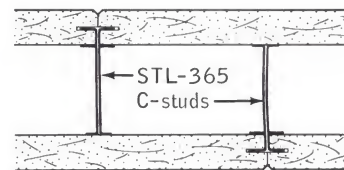
alternate stud systems



T-stud



T/C stud



C-stud

specifications—notes to architect

1. *USG Aluminum Door Frames for ULTRAWALL Partitions are furnished in two styles, a two-piece and a three-piece frame. Both accommodate hollow core and solid core doors in 1 3/4" thickness only.*

The two-piece frame is for ceiling-height openings with 3'0"x7'0" door and transom above. Ends are cut square. Head is completed with a snap-in runner. Available in 10' height, right or left hand opening.

The three-piece frame is complete with mitered joints for 3'0"x7'0" doors, right or left hand opening.

Both frames are supplied with concealed hardware including three 4 1/2"x4" hinges and standard 2 3/4"x1 1/8" strike and strike box (refer to ULTRAWALL Catalog of Components for template dimensions). Ball-bearing hinges are available and should be specified when closures are required.

2. *In certain areas where seismic design code requirements govern, consult local building codes for partition limitations.*

3. *Where this partition is used as a sound barrier, the use of caulking to seal all cut-outs, such as at electrical fixtures and to seal all intersections with the adjoining structure is recommended. Eliminate cutting holes back to back and adjacent to each other.*

4. *The addition of THERMAFIBER Sound Attenuation Blankets to the stud cavity, pressed tightly in place, stapled to the back side of one face of partition, will increase the sound transmission loss of the partition.*

5. *Fixture Attachment—Lightweight fixtures and trim should be installed using plastic plugs or other expandable anchors for screw attachment. Medium and heavy weight fixtures should be supported from the primary framing.*

6. *Electrical Fixtures—The depth of electrical boxes should not exceed 2 1/2". Standard conduit and boxes may be used.*

Part 1: general

1.1 **scope**—Furnish and erect ULTRAWALL partitions as indicated on the plans and specified hereunder.

1.2 **description of systems**—Partitions shall be flush-panel type, 3 3/8" thick, (railing, cornice, and/or ceiling height).

1.3 qualifications

a. Installation of ULTRAWALL partitions shall be by a U.S.G.-approved contractor.

b. All materials included herein, except as noted, shall be supplied by United States Gypsum Company.

1.4 **submittals**—The partition contractor shall submit shop drawings showing partition construction details.

1.5 **delivery and storage of materials**—All materials shall be delivered in their original unopened packages. Materials shall be stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

Part 2: products

2.1 **fire-rated gypsum board panels**—ULTRAWALL Panels (plain) (vinyl-faced—specify color) 3/4" thick by 24" wide by appropriate height.

2.2 **studs**—Roll formed electro-galvanized steel (one-piece H-stud) (one-piece T-stud) (combination T/C studs) (one-piece C-stud).

2.3 runners

2.3.1 **floor runners**—Electro-galvanized steel runner with formed-in spacers to hold panels in alignment.

2.3.2 **ceiling runners**—One-piece extruded aluminum runner with formed-in spacers, and integral trim to conceal top edges of panels.

2.4 **z-splines**—3/4" Z-Splines, for attachment of third layer of panels.

2.5 **attachment clips**—SBS-153 Z-Spline attachment clips.

2.6 **top set base**—For adhesive application after panels have been erected and finished. (Base not by U.S.G.)

2.7 **door frames**—USG Aluminum Door Frames (two-piece) (three-piece).

2.8 **doors**—Wood doors, 1 3/4" thick, 3'0" by 7'0" (left-hand opening) (right-hand opening). (Doors not by U.S.G.)

2.9 **window frames**—Sized as shown on plans and assembled from standard ULTRAWALL extruded aluminum parts. Glass furnished by (partition contractor) (glazing contractor).

2.10 **aluminum trim**—Exposed members etched and anodized with permanent satin finish, 204-R1.

Part 3: execution

3.1 **studs and runners**—Lay out the partition. Securely attach floor and ceiling runners. Accurately plumb strut studs at door openings and ULTRAWALL terminals.

3.2 **gypsum panels**—Install ULTRAWALL Panels, steel studs and trim members in accordance with United States Gypsum Company's Installation Guide directions.

3.3 **workmanship**—Erect partitions so as to be rigid, plumb, with horizontal lines leveled, neat in appearance, and free from defects in workmanship. Conceal all connections to walls, floors, ceilings, cornice sections, and connections between gypsum board panels. (Adjust all hardware to proper working order.)

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: ULTRAWALL (gypsum panels); USG (gypsum wallboard, metal products); THERMAFIBER (insulation products); DURABOND (adhesive).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Wd Stud—Resil $\frac{5}{8}$ " IMPERIAL plaster base & veneer plaster—2x4 16" o.c.—3" THERMAFIBER ins wool blkts—RC-1 chan one side spaced 24" o.c.—base att with 1" Type S screws—opp side att direct with $\frac{1}{4}$ " Type W screws— $\frac{1}{16}$ " IMPERIAL plaster both sides—perimeter caulked wt 8 width $5\frac{1}{2}$ "	UL Des 27-1 hr (f) CK-664-4 (s) USG-111-FT-G&H (s)		49 50	142	Good sound isolation combined with highly abrasion-resistant surface. CK-664-4 based on $\frac{1}{2}$ " plaster base	a-1331
1 hr.	Wd Stud— $\frac{1}{2}$ " IMPERIAL plaster base Type X att direct & veneer plaster—2x4 16" o.c.—base att 6d nails 7" o.c. $\frac{1}{16}$ " IMPERIAL plaster—joints taped wt 7 width $4\frac{3}{4}$ "	U of C 10-27-64 (f)	N/A		113	Excellent surface hardness and abrasion resistance	a-1331
1 hr.	Wd Stud— $\frac{5}{8}$ " IMPERIAL plaster base Type X & veneer plaster—2x4 16" o.c.—pl base nailed 7" o.c. $\frac{1}{16}$ " cem ctd nails— $\frac{1}{16}$ " IMPERIAL plaster both sides—joints taped wt 7 width 5"	UL Des 5-1 hr (f)	N/A		120		a-1331
2 hrs.	Wd Stud—2 layers $\frac{5}{8}$ " IMPERIAL plaster base Type X & veneer plaster—2x4 16" o.c.—base layer 6d nails 6" o.c.—face layer lamin or nailed to base— $\frac{1}{16}$ " IMPERIAL plaster both sides—joints taped wt 12 width $6\frac{1}{4}$ "	UL Des 4-2 hr (f)	N/A		169	Basic 2-hour partition construction	a-1331

ceiling applications

1 hr.	$\frac{1}{2}$ " IMPERIAL gypsum pl base Type X & veneer plaster ceiling—wd joist 2x10 16" o.c.—1" nom wd sub & fin flr—pl base att 5d nails 6" o.c.— $\frac{1}{16}$ " IMPERIAL plaster—joints taped clg wt 3	UL Des 42-1 hr (f)	N/A		clg matls 27		a-1331
1 hr.	Resil $\frac{1}{2}$ " IMPERIAL gypsum pl base Type X & veneer plaster ceiling—wd joist 2x10 16" o.c.—1" nom wd sub & fin flr—RC-1 chan spaced 16" o.c. and at end joints—pl base att with Type S screws 12" o.c.— $\frac{1}{16}$ " IMPERIAL plaster—joints taped clg wt 3	UL Des 41-1 hr (f)	N/A		clg matls 38		a-1331
1 hr.	$\frac{5}{8}$ " IMPERIAL gypsum pl base Type X & veneer plaster ceiling—Amer Plywood Assn 2-4-1 flr 4x10 wd joist 48" o.c.—USG met fur chan spaced 24" o.c.—pl base att with 1" Type S screws— $\frac{1}{16}$ " IMPERIAL plaster—joints taped clg wt 3	UL Des 28-1 hr (f)	N/A		clg matls 40	Only 1-hr. residential veneer plaster system based on 48" joist spacing	a-1331
1 hr.	$\frac{5}{8}$ " IMPERIAL gypsum pl base Type X & veneer plaster ceiling—1" nom wd sub & fin flr—2x10 wd joists 16" o.c.—pl base att with 6d nails 6" o.c.— $\frac{1}{16}$ " IMPERIAL plaster—joints taped clg wt 3	UL Des 1-1 hr (f)	N/A		clg matls 31		a-1331

description

In the IMPERIAL Plaster Systems for walls and ceilings, a veneer ($\frac{1}{16}$ " to $\frac{3}{32}$ " thick) of specially formulated, high-strength gypsum plaster is applied over IMPERIAL Plaster Base. Either IMPERIAL Finish Plaster is applied in a single-coat system, or IMPERIAL Basecoat Plaster is used in a two-coat application as a superior base for IMPERIAL or DIAMOND* Finish, STRUCTO-GAUGE* Gauging Plaster and lime, or Keene's lime-sand-float finish.

IMPERIAL Plaster Base, 4' wide, has a high-strength, high-density core, either regular or Type X fire-rated, covered with special absorption face paper designed for veneer plastering. Versatile IMPERIAL Plaster Base is directly attached to wood framing with screws or nails or resiliently attached using the RC-1 Resilient Channel to provide superior sound transmission loss. In the latter method IMPERIAL Plaster Base is fastened to the resilient channels with power-driven USG® Brand Screws Type S spaced 12" o.c. These specially designed self-tapping steel screws with a rust-inhibitive coating provide superior holding power and reduced core fracturing.

This system, with the lath and plaster resiliently attached over one side of wood studs, directly attached to the other and with THERMAFIBER* Insulating Blanket stapled in the stud cavity, provides one of the most economical party walls. High quality, fire-resistant ceilings are rapidly installed with this system applied directly to wood joists or over resilient channels for added sound control. IMPERIAL Plaster Base and Plaster may also be used with metal studs, metal furring channels or in laminated gypsum construction to meet incombustibility requirements for interior partitions, party walls, chase walls

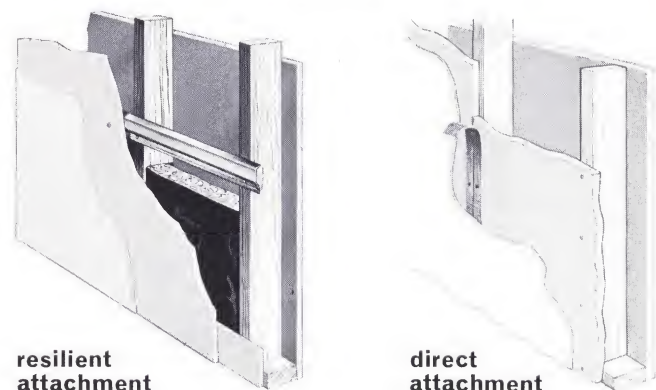
and furring (see separate IMPERIAL Plaster/Incombustible System Folder for details).

function and utility

IMPERIAL Plaster Systems are designed for interior partitions and ceilings wherever conventional plaster or drywall systems are used. The integrated components provide exceptionally hard surfaces ready for next-day decoration or trim application.

Durability—The high-strength (approx. 3,000 psi), abrasion- and crack-resistant features of IMPERIAL Plaster offer the durability needed in high traffic areas, and obtainable with few other materials.

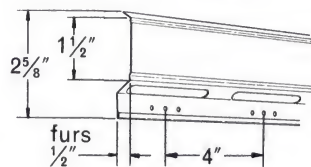
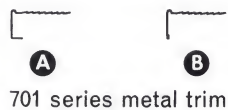
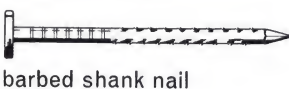
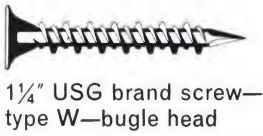
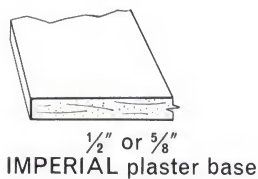
(continued on page 3)



resilient attachment

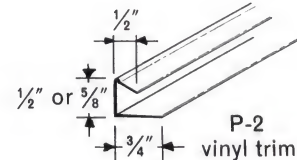
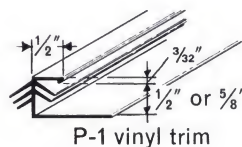
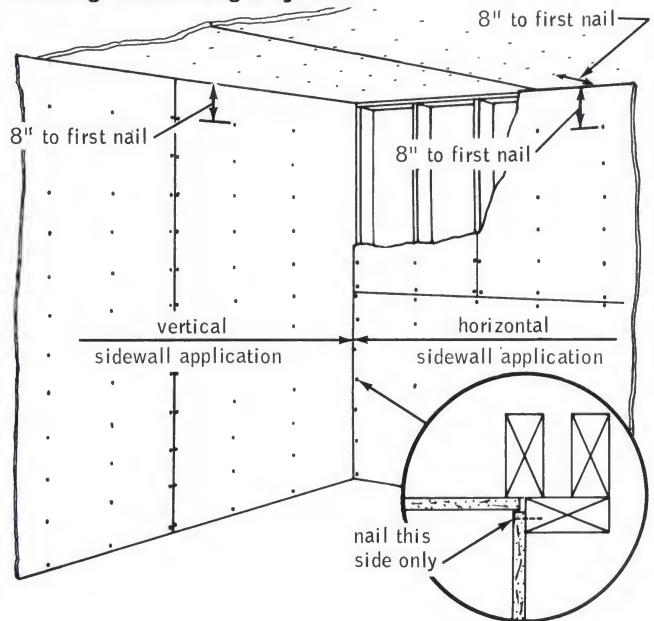
direct attachment

components/details



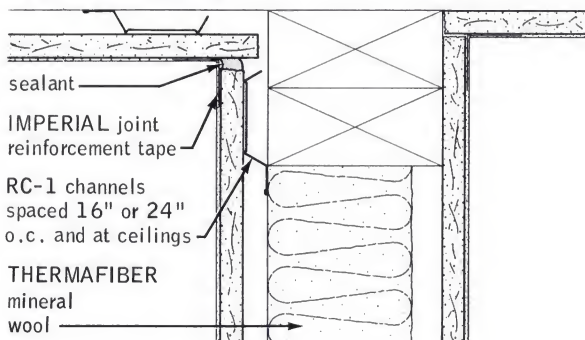
see "plaster bases" product catalog for
full description on accessories & sizes

floating interior angle system

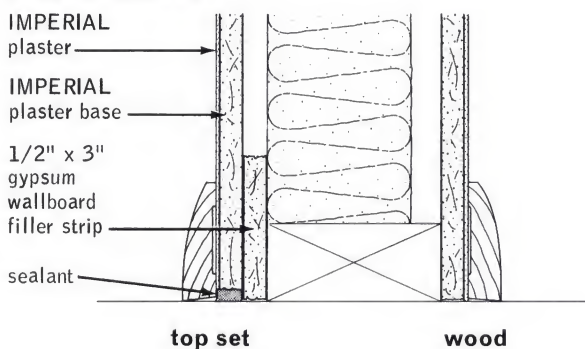


details

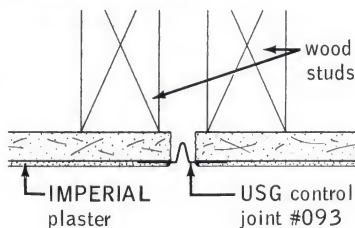
ceiling attachment



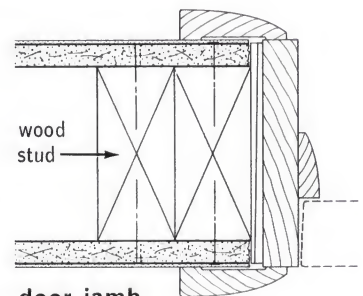
floor attachment



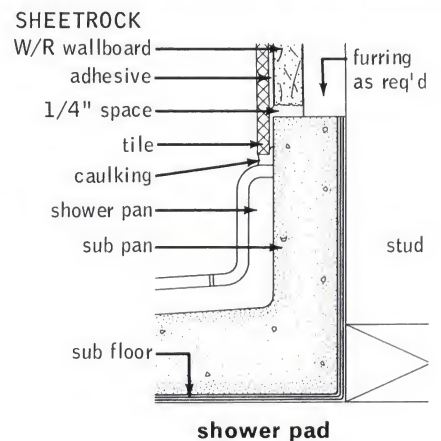
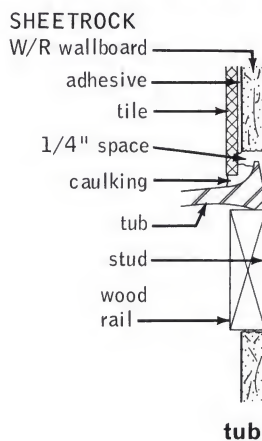
miscellaneous



control joint



SHEETROCK W/R wallboard installation - tub and shower areas



function and utility (continued from page 1)

Fire Resistance ratings of 1 hour are available using Type X plaster base in both walls and ceilings (see table page 1).

Sound Control—The systems offer sound isolation up to 50 STC with the use of resilient channels and insulating wool; suitable for party walls (see table page 1).

Versatility—Adaptable to most dimensions or modules in virtually all types of buildings, these systems meet all normal design and job conditions.

Light Weight—The single-layer systems weigh 7 to 8 psf; appreciably less than masonry partitions of the same thickness.

Economy—Simple, inexpensive components erect quickly at a lower cost than conventional plaster systems. Plaster is rapidly applied; both IMPERIAL basecoat and finish are available in choice of two formulas for machine or hand application.

limitations

- These constructions should not be used where normally exposed to excessive moisture, humidity or temperature.
- Type S Screws must be used for attachment of single layer base to RC-1 Resilient Channels.
- RC-1 Resilient Channels must be attached to framing only with 1¼" Type W Screws. Nails should not be used.
- Resilient ceilings should not be installed beneath highly flexible floor joists. Install only to framing meeting "Wood Framing Requirements" (see Specifications).
- Max. Framing Spacing: 16"; except 24" for double layer assemblies and for ⅝" thick base with two-coat plaster application.

fastener spacing—IMPERIAL Plaster Base

thickn. of base	framing	type fastener	max. fastener spacing
½"	wood	Nails (for regular base)—1¼", 13 ga., 1½" head, ring or barbed shank, blued, polished or cement coated	7" ceilings 8" walls
		Nails (for Type X base)—1⅝" 5d cooler type cement coated	6" ceilings 7" walls
		Screws—1¼" USG Brand Type W	12"
		Screws—⅝" USG Brand Type S	12"
with RC-1 channel			
⅝"	wood	Nails (for regular base)—1⅝", 13 ga., 1½" head, ring or barbed shank, blued, polished or cement coated	7" ceilings 8" walls
		Nails (for Type X base)—1⅝" 6d cooler type cement coated	6" ceilings 7" walls
		Screws—1¼" USG Brand Type W	12"
		Screws—1" USG Brand Type S	12"
with RC-1 channel			

specifications—notes to architect

- Plaster base surfaces should be isolated with control joints or other means where: (a) partition abuts a structural element (except floor) or dissimilar wall or ceiling; (b) construction changes within the plane of partition or ceiling; (c) partition run exceeds 30'; (d) ceiling dimensions exceed 50' in either direction.

Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.

- Penetrations of the lath-and-plaster diaphragm, such as door and borrowed-light openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

- Plenum or attic space closed by ceiling installation should be vented with a min. ½ sq. in. net free vent area per 1 sq. ft. of horizontal surface.

- Where these partitions are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs, such as at electrical boxes, and at the perimeter of the partitions. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. Door and borrowed-light openings are not recommended in sound control partitions.

- Wood Framing Requirements—Wood framing meeting the minimum requirements of FHA, ALSC and local building codes is necessary for proper performance.

- Ceramic Tile—IMPERIAL Plaster Base is not recommended as a base for the adhesive application of ceramic, metal and plastic tile unless the edges are protected from wetting and the entire surface is sealed with adhesive or other material recommended by the tile manufacturer. SHEETROCK® W/R Gypsum Wallboard is recommended for this use (see details).

- Proper sealing of IMPERIAL Plaster surfaces before painting is essential.

- Zinc alloy accessories are recommended where corrosion due to high humidity or saline content of aggregate is possible.

- See U.S.G. Product Folders in this series: Gypsum Plasters Folder for Plaster Specifications; Plaster Bases & Accessories Folder for General Lathing Specifications; Paint Products Folder for Paint Specifications; Insulating Wool Products Folder for Insulation Specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales office.

Part 1: general

- scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

- In cold weather, all glazing shall be completed and the building heated to a minimum of 55°F. Before plaster base installation, ventilation shall be provided to carry off excess moisture.

- When low humidity, high temperatures and rapid drying conditions exist during plaster base and plaster application, DURABOND® Joint Compound and PERF-A-TAPE® Reinforcement shall be used on all joints, internal corners, trim and corner beads and allowed to set and dry thoroughly before plaster application.

Part 2: products

2.1 materials

- IMPERIAL Plaster Base—(½") (⅝") thick, 48" wide, (Regular) (Insulating) (Type X), lengths as required.
- RC-1 SHEETROCK Resilient Channel.

- c. THERMAFIBER Insulating Wool Blankets (thickness).
- d. Fasteners—(choose from page 2).
- e. IMPERIAL Tape—(Type P) (Type S) for joint reinforcement.
- f. USG No. 900 Corner Bead.
- g. USG Metal Trim (701-A) (701-B).
- h. USG Vinyl Trim (P-1) (P-2).
- i. USG No. 093 Control Joint.
- j. USG Acoustical Sealant.
- k. PERF-A-TAPE Reinforcement and DURABOND Joint Compound.

Part 3: execution

3.1 plaster base—direct attachment

Apply IMPERIAL Plaster Base on ceilings first, (horizontally—right angles to framing) (vertically—parallel to framing). Position all ends over framing in horizontal application; all edges over framing members in vertical application. Use maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together.

Stagger end joints in successive courses with joints on opposite sides of partition placed on different studs. Float plaster base at vertical interior angles by attaching the overlapping sheet of base only, at the angle; at horizontal interior angles by attaching both sheets of base no closer than 8" from the angle.

Drive fasteners in field of base first, working toward ends and edges. Hold base in firm contact with framing while driving fasteners. Space nails 7" to 8" o.c., screws 12" o.c., and perimeter fasteners not less than $\frac{3}{8}$ " from ends or edges. Drive fastener heads flush with surface of base, not dimpled, and without breaking paper. Wherever plaster base is not drawn tightly against framing, drive an additional fastener within $1\frac{1}{2}$ " of first.

Cut base to fit neatly around pipes, electrical outlets, medicine cabinets, etc. Remove any loose face paper at cut and fill gaps or holes with quick setting plaster.

3.2 plaster base—resilient attachment

Position RC-1 Resilient Channels at right angles to wood framing, space (16") (24") o.c. and attach with $1\frac{1}{4}$ " type W screws driven through holes in channel mounting flange.

On walls, attach $\frac{1}{2}$ " x 3" wide continuous filler strips to both sides of bottom plate. Install channels with mounting flange down, top channel max. 6" down from ceiling, bottom channel

(16") (24") up from floor. Extend channels into all corners and attach to corner framing.

On ceilings, position first and last channels max. 6" from wall-ceiling angle. Cantilever channel ends no more than 6".

Splice channels by nesting directly over framing member; screw-attach through both flanges. Reinforce with screws located at both ends of splice.

Apply IMPERIAL Plaster Base, ceiling first, with long dimension at right angles to channels, and end joints neatly fitted and centered over channel attachment flange. Attach with ($\frac{3}{8}$ ") (1") type S screws spaced 12" o.c. across each channel and perimeter screws not less than $\frac{3}{8}$ " from ends and edges. Support plaster base around all cut-outs and openings.

3.3 accessory application

a. Reinforcing Tape—Apply over full length of all plaster base joints; do not overlap at intersection.

Type P Tape—Press firmly along entire length to insure firm wrinkle-free attachment.

Type S Tape—Apply with spring-driven stapler using $\frac{3}{8}$ " staples. Use two staples at each end of tape and stagger intermediate staples 24" o.c. along length of tape. At wall-ceiling intersections and interior corners, staple tape 24" o.c. along ceiling edge or on one edge only. For fire-rated assemblies, staple tape 8" o.c.

b. Corner Bead—Attach to all vertical and horizontal exterior corners with nails or staples spaced 12" o.c. along both flanges.

c. Casing Bead—Install 701-A Metal Trim, expanded-mesh flange out, over plaster base at door and window openings; attach with nails driven into door or window buck. Install 701-B Metal Trim, expanded-mesh flange out, over plaster base at junction with rough concrete or masonry; attach with staples or with nails driven into framing.

d. Vinyl Trim—Slip P-1 Trim over plaster base with long flange behind base. Install plaster base with trim firmly abutting surface. For P-2 Vinyl Trim, provide $\frac{1}{8}$ " to $\frac{3}{8}$ " relief at ceiling perimeter. Remove protective paper from adhesive on web of trim and insert trim into relief, adhesive against wall surface. Press upward until long flange seats against ceiling.

e. Control Joint—Install in direct mounted face layer. Break base behind joint and back by double studs; attach joint to plaster base with staples spaced 12" o.c. on both flanges along entire joint length.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured and/or sold by that company. IMPERIAL, DIAMOND, STRUCTO-GAUGE (plaster); USG (metal products); SHEETROCK (gypsum wallboard, metal channel); THERMAFIBER (insulation products); PERF-A-TAPE, DURABOND (joint treatment).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Wd Stud—Metal Lath & Plaster—2x4 16" o.c.—3.4# dm met lath— $\frac{3}{4}$ " 100:2-100:3 gypsum sand plaster wt 20 width 5 $\frac{1}{2}$ "	BMS-92 table 30 (f) NBS-228 F43 (s)	41		146		a-1350
1 hr.	Wd Stud—Metal Lath & Plaster—2x4 16" o.c.—3.4# dm met lath— $\frac{5}{8}$ " 100:2-100:2 gypsum sand plaster wt 18 width 5 $\frac{1}{2}$ "	BMS-92 table 30 (f)	39 est		146		a-1350
1 hr. est	Wd Stud—Resil Metal Lath & Plaster—2x4's—3.4# dm met lath— $\frac{3}{4}$ " pencil rod—#200 resil clips— $\frac{3}{4}$ " gypsum sand plaster wt 21 width 6 $\frac{1}{2}$ "	TL-61-86 (s)	43		177	Excellent sound isolation for this type construction	a-1350

ceiling applications

1 hr.	Wd Joist—Metal Lath & Plaster Ceiling—1" nom wd sub & fin flr—3.4# dm met lath att with 1 $\frac{1}{2}$ " nails 6" o.c.— $\frac{5}{8}$ " 100:2-100:3 gypsum sand plaster clg wt 10	BMS-92 table 42 (f)	35 db est		clg matls 55		a-1350
1 hr. est	Wd Joist—Resil Metal Lath & Plaster Ceiling—1" nom wd sub & fin flr—3.4# dm met lath att to $\frac{1}{4}$ " pencil rod on #200 resil clips— $\frac{5}{8}$ " 100:2-100:3 gypsum sand plaster clg wt 10	NBS-710 (s)	52		clg matls 68	Excellent sound isolation & crack resistance	a-1350

description

These fire-resistant assemblies consist of USG Metal Lath and gypsum plaster attached to wood studs or joists and provide economical, crack-resistant walls and ceilings. Metal lath is attached by either of two methods:

Direct Attachment—Metal lath, applied across supports with end joints staggered and occurring over supports, is attached directly to framing with nails or staples spaced 6" o.c.

Resilient Attachment—USG Resilient Clips No. 200, spaced 16" o.c. for walls and 12" o.c. for ceilings, are nailed to the wood framing. $\frac{1}{4}$ " pencil rods are nested into the clips and metal lath is tied to the rods. By using these specially designed resilient clips, the two lath and plaster diaphragms are not rigidly coupled to the framing members. The isolation provided by the clips appreciably reduces the transmission of sound and structural movement to the outer surface of the plaster (see table above).

Metal lath, expanded from rust-resisting steel, is a versatile, lightweight base for the economical application of gypsum plasters. For these assemblies it is available in three types. USG Junior Diamond Mesh Lath is a general all-purpose lath, and recommended for ornamental, contour plastering. USG $\frac{1}{8}$ " Z-Riblath, more rigid than Diamond Mesh Lath, is an excellent nail-on lath. USG $\frac{3}{8}$ " Riblath is a self-furring type lath with exceptional rigidity that is suitable for support spacings up to 24" o.c. (see limitation below).

function and utility

Versatile—Readily adapted to virtually all types of new construction and remodeling to provide fire protection, sound control and hard, abrasion-resistant, easily decorated plaster walls and ceilings. They satisfy most design and job conditions in commercial, industrial and residential applications where wood framing is used. Curved surfaces can be formed more satisfactorily than by any other method.

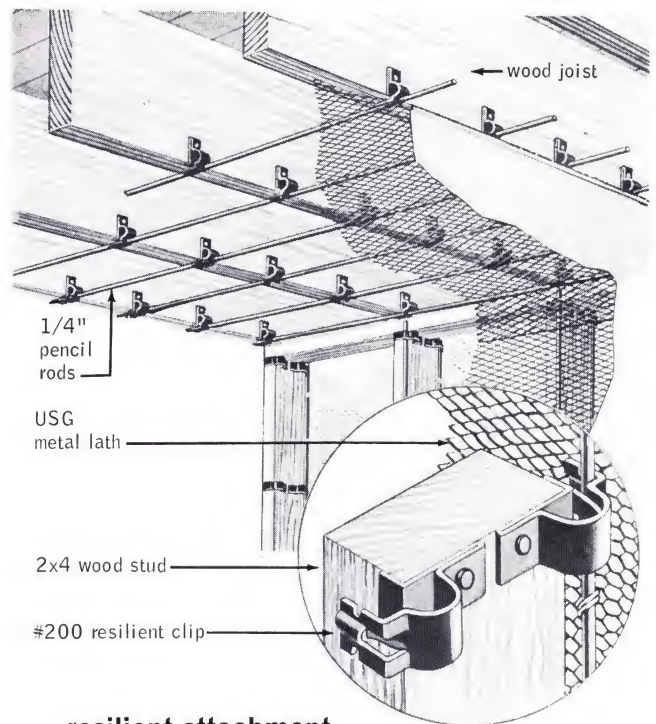
Fire Resistance—One-hour fire-resistance ratings have been established, acceptable for both walls and ceilings (see table above):

Sound Control—The Resilient Clips increase the sound-isolative efficiency of the construction to result in a partition with a 43 Sound Transmission Class.

Crack Resistance—The metal lath reinforcing in the plaster resists cracking and failure due to structural movement of the frame. Resilient attachment markedly reduces the possible transmission of stresses due to structural movement to the lath and plaster membrane, thereby reducing the incidence of cracking.

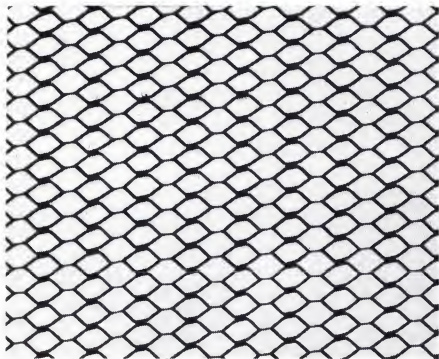
limitations

1. Maximum support spacing: 16" for resilient attachment to wood studs or joists; for direct attachment (see table page 2).
2. 2.5 lb. Diamond Mesh Metal Lath is not recommended for ceiling application. $\frac{3}{8}$ " Riblath is not recommended for resilient application.

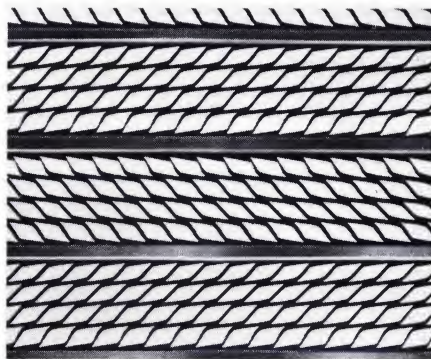


resilient attachment

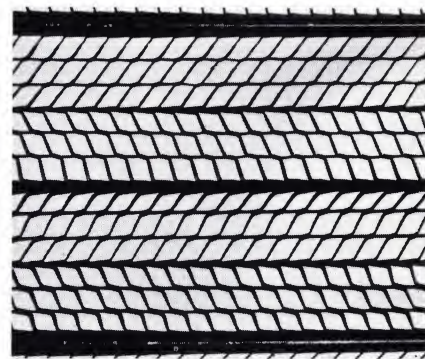
components



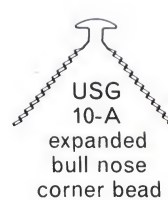
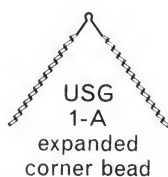
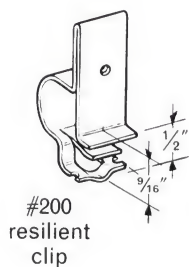
USG junior diamond mesh lath



USG 4-mesh z-rib lath

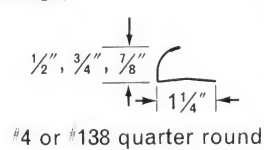
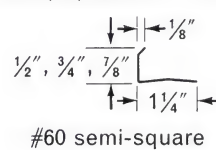
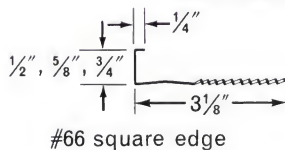


USG 3/8" rib lath



USG casing beads (expanded or short flange)

see "plaster bases" product catalog for full description on accessories & sizes



direct attachment

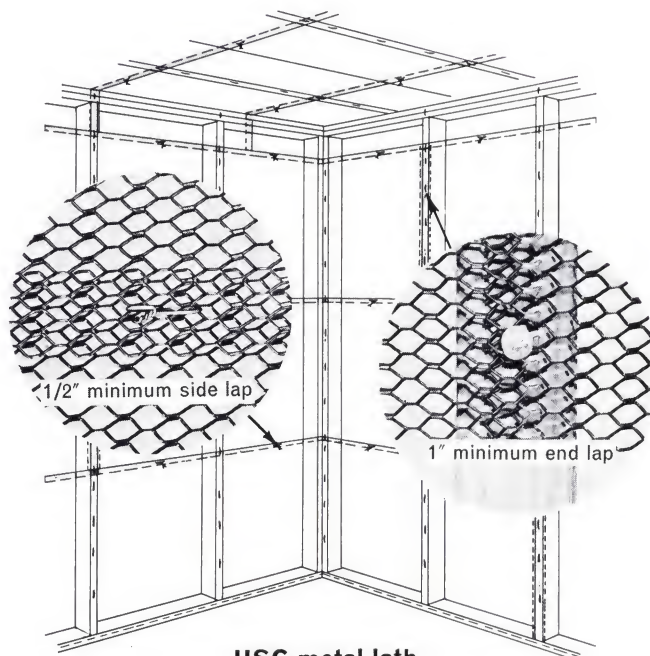
spacing of supports

type of lath	weight per sq. yd. (lbs.)	maximum allowable spacing wood studs	maximum allowable spacing wood joists
diamond mesh	2.5	16"	(1)
diamond mesh	3.4	16"	16"
1/8" Z-rib lath	2.75	16"	16"
1/8" Z-rib lath	3.4	19"	19"
3/8" rib lath	3.4	24"	24"
3/8" rib lath	4.0	24"	24"

(1) not recommended

attachment spacing

framing	attachment	fastener spacing c. to c.
wood studs	nails—4d common, driven to 3/4" penetration and bent over to engage 3 strands or through the rib.	6"
	nails—1" roofing nail 7/16" head, engaging 2 strands or through the rib.	6"
	staples—1", 14 ga. wire staples, engaging 2 strands or a rib.	6"
wood joists	nails—1 1/2", 11 ga. barbed roofing nail, 7/16" head, engaging 2 strands or a rib.	6"

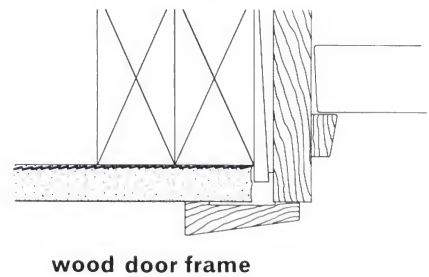
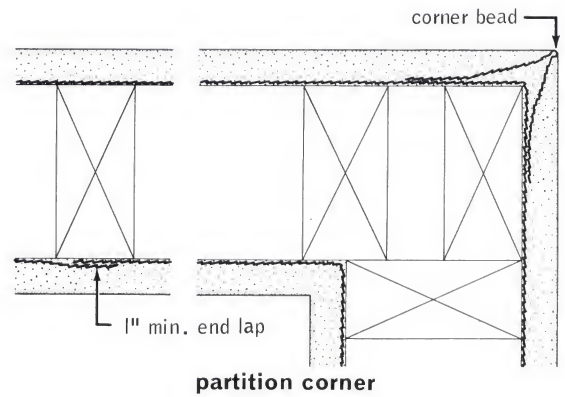
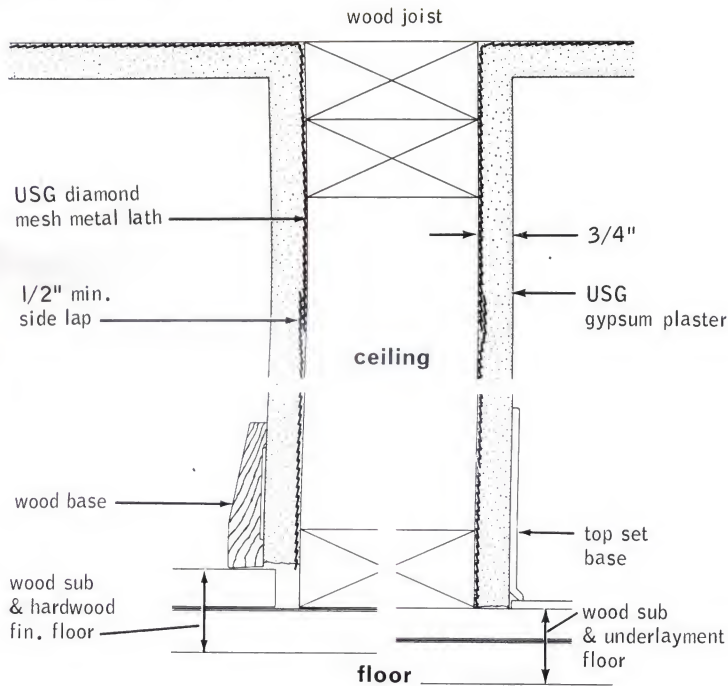


USG metal lath on wood frame construction

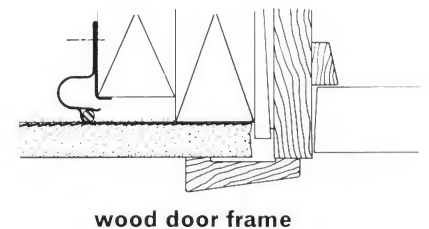
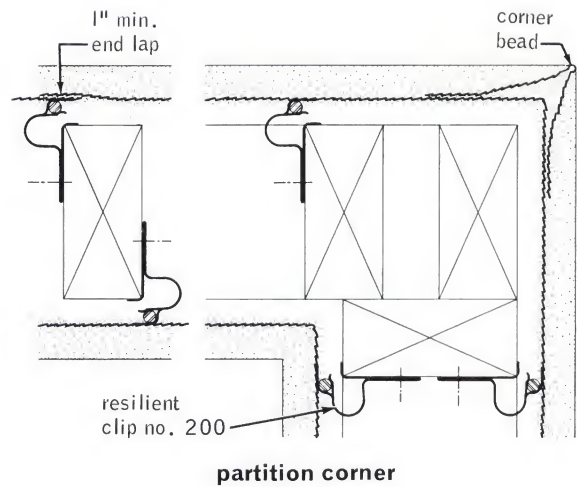
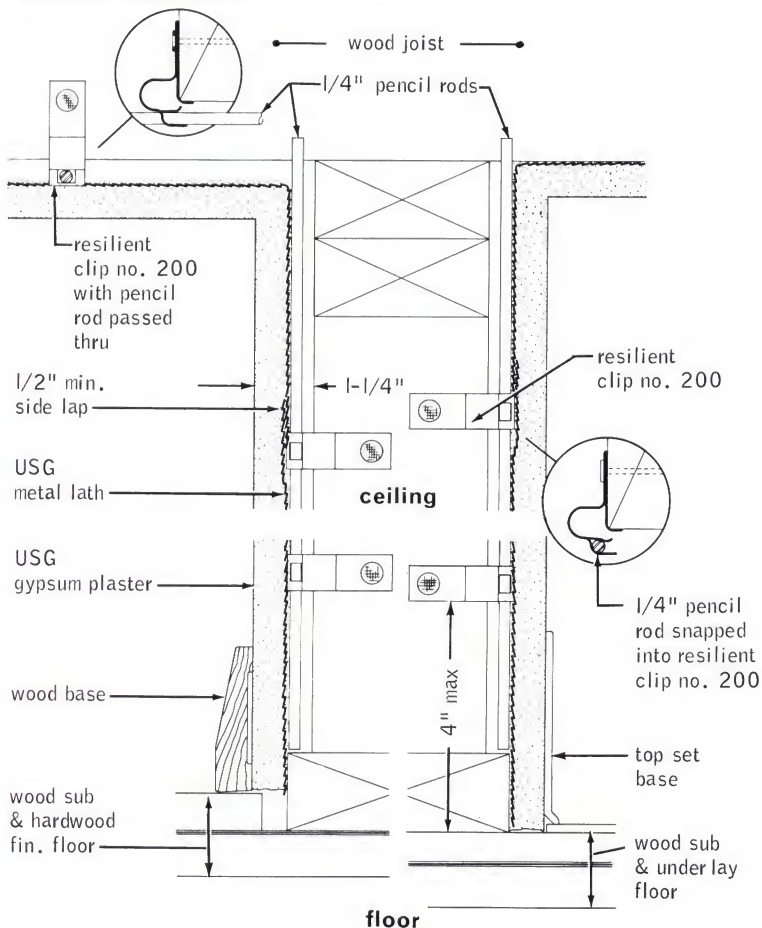
details

scale: 3" = 1'-0"

direct attachment



resilient attachment



specifications—notes to architect

1. In cold weather, all glazing should be complete and the building must be heated to a minimum of 55°F. Before lathing, ventilation should be provided to carry off excess moisture.

2. Lath and plaster surfaces will not resist stresses imposed by structural movement, and are subject to dimensional variations due to changes in temperature and humidity. It is recommended that lath and plaster surfaces be isolated from the following structural elements by control joints, or other means where:

- (a) a partition or ceiling abuts any structural elements, dissimilar wall or partition assembly, or other vertical penetration;
- (b) the construction changes within the plane of the partition or ceiling.

In long partitions runs, control joints should be provided no more than 30' o.c. Door frames extending from floor to ceiling may be used as control joints. For doors less than ceiling height, control joints extending from the center of both corners of the frame to the ceiling may be used. Expansive ceiling areas should have control joints, spaced not to exceed 50' in either direction. The continuity of both lath and plaster should be broken under control joints. Control joints may be positioned to intersect light fixtures, heating vents, air diffusers, etc., which are usually considered weak spots.

3. Holes cut in a thin lath and plaster membrane such as door frames, borrowed lights, vents, grilles, access panels, light troffers, etc., cause a concentration of stresses in the plaster. The use of additional reinforcement is recommended at the weakened area to resist and distribute concentrated stresses where, in the judgment of the architect, for reasons of economy and design, a control joint is not otherwise specified.

4. Where contact or furred ceilings occur under roof construction, the plenum or attic space should be vented according to recommended engineering practice.

5. To retain maximum sound isolation, the integrity of the partition or ceiling should not be voided by openings, such as doors, electrical outlets, medicine cabinets, vents, etc., so as to create sound leaks. Use sand aggregate only; do not use lightweight aggregates.

6. Where corrosion due to high humidity and/or saline content of aggregates is possible, the use of zinc alloy accessories is recommended.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

materials

See U.S.G. product folders in this series: Gypsum Plasters Folder for Plaster Specifications; Plaster Bases & Accessories Folder for General Lathing Specifications; Paint Products Folder for Paint Specifications.

All materials herein specified shall be manufactured by the United States Gypsum Company, unless otherwise indicated.

- a. Metal Lath shall be (2.5) (3.4) (Diamond Mesh), (2.75) (3.4) (1/8" Z-Riblath), (3.4) (4.0) (3/8" Riblath), 27"x96".
- b. USG Corner Bead (specify style from page 2).

c. USG Casing Bead (specify type from page 2).

d. USG 8-A Picture Mould.

e. 18 ga. Tie Wire.

f. Nails—(4d common) (1" roofing nail, 7/16" head) (1 1/2", 11 ga. barbed roofing nail, 7/16" head) (13 ga., 1 1/8" lathing nail) (not available from U.S.G.).

g. Staples—1" 14-ga. Wire Staples (not available from U.S.G.).

h. USG Resilient Clip No. 200.

i. 1/4" Pencil Rod.

direct plaster base attachment

Metal lath shall be applied with long dimension across supports; riblath, with rib projections against support. Ends of lath shall be lapped not less than 1". End laps between supports shall be adequately laced or tied with 18 ga. tie wire. Sides of diamond mesh lath shall be lapped not less than 1/2". Sides of riblath shall be lapped by nesting outside ribs, and shall be wire-tied between supports not to exceed 9" intervals. On walls metal lath shall be placed so that lower sheets overlap upper sheets. Wherever possible, ends of lath in adjacent courses shall be staggered. At interior angles, metal lath shall be formed into corners and carried out onto abutting surface.

Metal lath shall be secured to supports at intervals not exceeding 6" with nails or staples providing at least 3/4" penetration. Nails shall be driven through the rib or mesh engaging 2 strands. 4d common nails if driven through mesh shall be bent over to engage 3 strands. Staples shall engage 2 strands or a rib.

resilient plaster base attachment

USG Resilient Clips No. 200 shall be nailed to wood framing spaced not to exceed 16" o.c. on walls and 12" o.c. on ceilings. Clips shall provide 1/2" furring for metal lath from supports. Clips shall be located not more than 4" from floor, wall-to-wall and wall-to-ceiling intersections, and abutting dissimilar construction and as required above and below openings. On walls 1/4" pencil rods of ceiling height length shall be erected vertically spaced no more than 16" o.c. by engaging the clip projection. On ceilings 1/4" pencil rods spaced no more than 12" o.c. shall be erected across the supports by threading through the clip holes.

(Specify first paragraph from Direct Plaster Base Attachment above.)

Metal lath shall be secured to all supports with 18 ga. tie wire at intervals not exceeding 6". Ends of all ties shall have three full twists, then shall be bent up into the plane of the lath.

lathing accessories

a. Metal Corner Bead No. () shall be provided on all external plaster corners, and shall be in single lengths where the length of the corner does not exceed standard stock lengths. Fasten securely with wire-ties, etc., spaced not over 8" o.c.; stagger in two wings.

b. Casing Bead No. () shall be installed where indicated. Ends shall be accurately cut and mitered. Casing bead shall be wire-tied in place to provide full plaster grounds.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (metal products).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

ROCKLATH* and Wood Framing

PLASTER BASE

1360

INCORPORATING FORMER USG FOLDER a-1378

system folder

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
2 hrs.	Wd Stud—Gypsum Lath & Plaster—2x4 16" o.c.— $\frac{3}{8}$ " perf ROCKLATH nailed 5" o.c.—hex wire mesh nailed 8" o.c. over face of lath & held $\frac{5}{16}$ " away from face—1" 100:2½ gypsum perlite plaster wt 12 width 6 $\frac{3}{8}$ "	T-961-OSU (f)		N/A	195		a-1360
1 hr.	Wd Stud—Resil Gypsum Lath & Plaster—2x4 16" o.c.— $\frac{3}{8}$ " perf ROCKLATH—R-1 resil clips— $\frac{1}{2}$ " 100:2 gypsum sand plaster wt 15 width 6 $\frac{3}{8}$ "	T-1329-OSU (f) TL-60-20 (s)		47	160		a-1360
N/A	Wd Stud—Resil Gypsum Lath & Plaster—2x4 16" o.c.— $\frac{3}{8}$ " plain ROCKLATH—R-1 resil clips both sides— $\frac{1}{2}$ " 100:2½ gypsum sand plaster both sides—perimeter caulked wt 14.5 width 6 $\frac{3}{8}$ "	USG-121-FT-G&H (s)	54		138	Excellent sound attenuation at moderate cost	a-1360
N/A	Wd Stud—Resil Gypsum Lath & Plaster—2x4 16" o.c.—3" THERMAFIBER ins wool bkts— $\frac{3}{8}$ " plain ROCKLATH appl direct one side—opp side R-1 resil clips & $\frac{3}{8}$ " ROCKLATH— $\frac{1}{2}$ " 100:2½ gypsum sand plaster both sides—perimeter caulked wt 14.5 width 6 $\frac{3}{8}$ "	CK-664-37 (s) USG-118-FT-G&H (s)	56	50	159	Outstanding sound attenuation through use of clips and insulating wool	a-1360
1 hr. est	Stag Wd Stud—Gypsum Lath & Plaster—stag 2x4 16" o.c.—com top & bottom plates—2" THERMAFIBER ins wool bkts— $\frac{3}{8}$ " plain ROCKLATH nailed— $\frac{1}{2}$ " gypsum sand plaster wt 18 width 7 $\frac{3}{8}$ "	TL-58-64 (s)	50		182	Excellent party wall	a-1360
1 hr.	Wd Stud—Gypsum Lath & Plaster—2x4 16" o.c.— $\frac{3}{8}$ " plain ROCKLATH— $\frac{1}{8}$ " nails 4" o.c.— $\frac{1}{2}$ " 100:2 gypsum sand plaster wt 15 width 5 $\frac{3}{8}$ "	T-1380 OSU (f) NBS-148 (s)		40	128	Standard wood stud partition	a-1360

ceiling applications

N/A	Resil Gypsum Lath & Plaster Ceiling—wd joist—1" nom sub & fin flr— $\frac{3}{8}$ " ROCKLATH appl with R-1 resil clips— $\frac{1}{2}$ " gypsum sand plaster clg wt 6	NBS-709 F43 (s)	52		clg matls 58	Good resistance to airborne sound; excellent crack resistance	a-1360
1 hr.	Gypsum Lath & Plaster Ceiling—wd joist—1" nom wd sub & fin flr— $\frac{3}{8}$ " ROCKLATH FIRECODE—3" Striplath along joist— $\frac{1}{2}$ " 100:2 gypsum sand plaster clg wt 6	FPRI No. 6 (f)	37 est		clg matls 40	Best method to attain 1-hr. rating—standard frame const	a-1360
1 hr.	Gypsum Lath & Plaster Ceiling—wd joist—1" nom wd sub & fin flr— $\frac{3}{8}$ " ROCKLATH FIRECODE— $\frac{3}{8}$ " 100:2 gypsum perlite or STRUCTO-LITE plaster clg wt 5	T-2134-1 OSU (f)		N/A	clg matls 40	Constr. same as FPRI No. 6 except for Striplath & plaster	a-1360
1 hr.	Gypsum Lath & Plaster Ceiling—wd joist—1" nom wd sub & fin flr— $\frac{3}{8}$ " perf ROCKLATH— $\frac{1}{2}$ " 100:2½ gypsum perlite plaster clg wt 7	GA-NBS-258 (f)		N/A	clg matls 39	Standard frame construction	a-1360

wall furring application

—	Wood furring strips 16" o.c., Insulating ROCKLATH plaster base, $\frac{1}{2}$ " sanded basecoat plaster, lime putty coat	—	—	—	138	Does not isolate surface membrane from structural stresses	a-1360
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description

These fire-resistant assemblies consisting of ROCKLATH Plaster Base and USG® gypsum plaster provide economical, crack-resistant walls and ceilings in wood-frame construction. ROCKLATH Base is attached either directly or with USG Resilient Clips.

Direct Attachment—ROCKLATH Plaster Base, applied across supports with end joints staggered, is attached directly to wood studs or joists with nails or staples spaced approximately 5" o.c. Either of two application methods may be used:

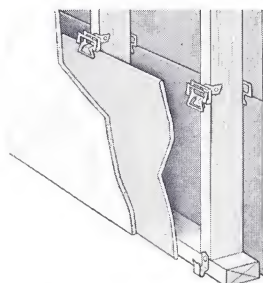
BRIDJOINT* Clip Application—ROCKLATH is placed so end joints occur between supports. Specially designed BRIDJOINT B-1 Field Clips hold the lath ends together in alignment. BRIDJOINT B-2 Corner Clips are used at interior corners to produce "floating angles" and increased resistance to cracking. By using fewer nails, this system provides economies that offset the cost of clips.

Nail-on Application—ROCKLATH is placed with end joints over and nailed to supports. Cornerite metal mesh reinforcing is used in interior angles. By partially nailing the lath and securing the Cornerite only to the ROCKLATH (not the fram-

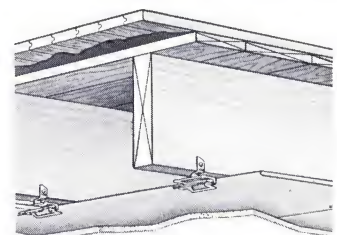
ing), "floating angles" may also be obtained with this system. About 33% more nailing is required with this application than with BRIDJOINT Clip application.

Resilient Attachment—ROCKLATH Base, applied across supports with end joints staggered, is attached with R-1 Resilient Clips nailed to the framing. Clips are spaced 16" o.c. and hold the lath ends together in alignment. R-2 Resilient Corner Clips are used at interior corners to provide "floating angles." These resilient clips isolate the lath and plaster from the

(continued on page 2)



resilient partition



resilient ceiling

*Reg. U.S. Pat. Off.

description (continued from page 1)

framing and appreciably reduce transmission of sound and structural movement to the plaster surface.

Wall Furring—Insulating ROCKLATH (foil-backed) and plaster over wood furring strips spaced 16" o.c. offer an economical and effective vapor barrier.

function and utility

These systems satisfy most design and job conditions in new construction and remodeling to provide fire protection to wood framing members, sound control and a hard, abrasion-resistant, easily decorated wall and ceiling surface.

Fire Resistance—One- and two-hour fire-resistance ratings have been established (see table page 1).

Sound Control—The basic partition has a 41 STC. With staggered wood studs and THERMAFIBER* Wool Blankets, a 50 STC has been obtained. Resilient clip attachment provides constructions up to 56 STC—suitable for party walls.

Crack Resistance—Superior strength and resistance to cracking is offered by the BRIDJOINT system of lathing. The inherent flexibility of resilient attachment improves resistance to cracking caused by structural movement.

limitations

1. Maximum support spacing: 16" o.c. for $\frac{3}{8}$ " ROCKLATH; 24" o.c. for $\frac{1}{2}$ " ROCKLATH Plaster Base.
2. Three-coat plastering is required on resiliently attached ROCKLATH ceilings.
3. Perforated ROCKLATH is not recommended for resilient ceiling attachment.

sound transmission loss

test no.	method	decibel frequency in cps											STC
		125	175	250	350	500	700	1000	1400	2000	2800	4000	
TL-60-20	Lab	42	43	46	49	51	52	52	48	47	52	56	47
USG-121-FT-G&H	Lab	31	42	46	50	54	57	59	57	54	56	63	54
USG-118-FT-G&H	Lab	35	45	46	50	55	58	59	59	59	63	63	56
TL-58-64	Lab	40	40	41.5	44	48	53	53.5	—	47	—	57	50
NBS-148	Lab	33	28	31	35	39	44	46	—	49	—	66	40

specifications

notes to architect

1. In cold weather, all glazing should be complete and the building must be heated to a minimum of 55° F. Before lathing, ventilation should be provided to carry off excess moisture.
2. Lath and plaster surfaces will not resist stresses imposed by structural movement, and are subject to dimensional variations due to changes in temperature and humidity. It is recommended that lath and plaster surfaces be isolated from the following structural elements by control joints, "floating angles," or other means where:
 - a. a partition or ceiling abuts any structural elements, dissimilar wall or partition assembly, or other vertical penetration.
 - b. the construction changes within the plane of the partition or ceiling.

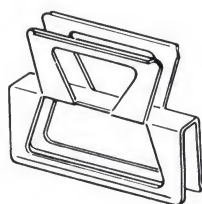
In long partition runs, control joints should be provided no more than 30' o.c. Door frames extending from floor to ceiling may be used as control joints. For doors less than ceiling height, control joints extending from the center or both corners of the frame to the ceiling may be used.

Expansive ceiling areas should have control joints, spaced not to exceed 50' in either direction. The continuity of both lath and plaster should be broken under control joints. Control joints may be positioned to intersect light fixtures, heating vents, air diffusers, etc., which are usually considered weak spots.

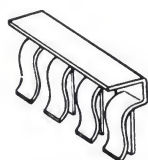
3. Holes cut in a thin lath and plaster membrane such as door frames, borrowed lights, vents, grilles, access panels, light

(continued on page 4)

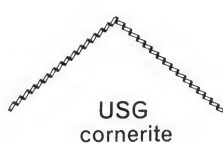
components



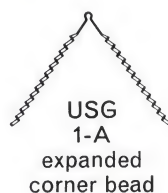
BRIDJOINT B-1
field clip



BRIDJOINT B-2
corner clip



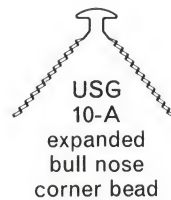
USG
cornerite



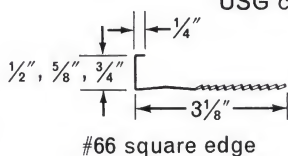
USG
1-A
expanded
corner bead



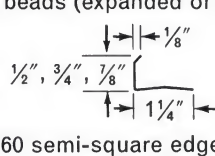
USG
4-R
expanded
flange
corner bead



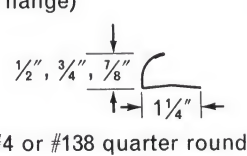
USG
10-A
expanded
bull nose
corner bead



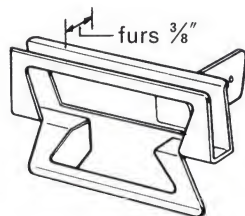
#66 square edge



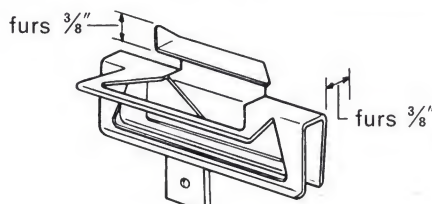
#60 semi-square edge



#4 or #138 quarter round



R-1
resilient clip



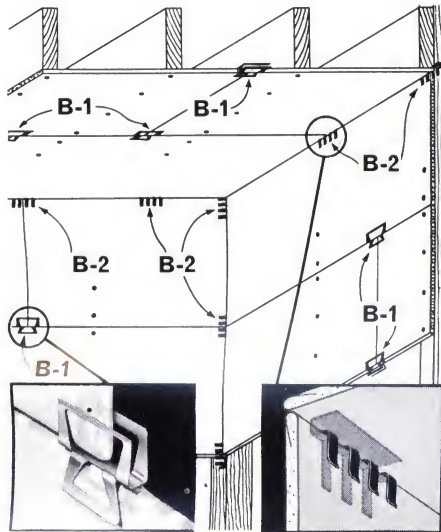
R-2
resilient corner clip



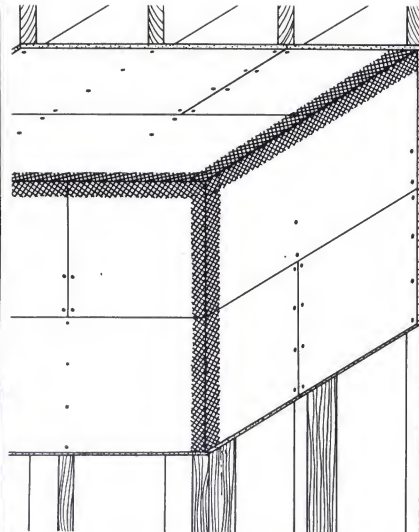
R-SF resilient
starter finisher

see "plaster bases" product catalog for full description on accessories & sizes

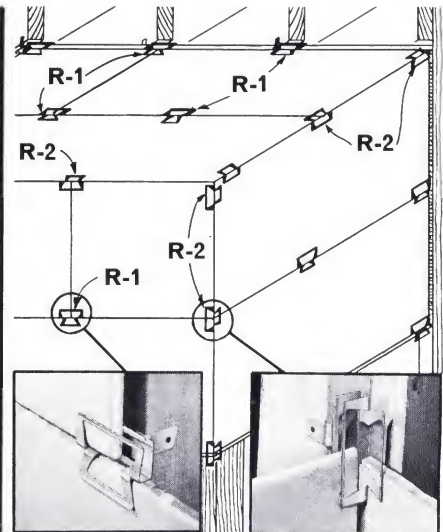
details



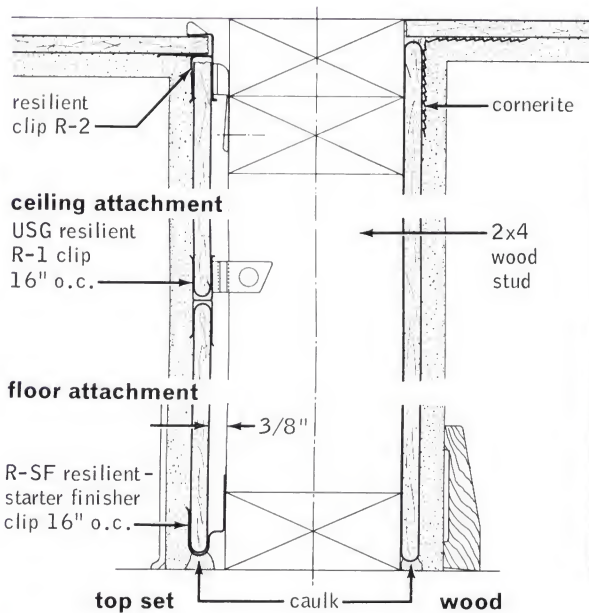
BRIDJOINT clip attachment



nail-on attachment



resilient clip attachment



ceiling attachment

USG resilient
R-1 clip
16" o.c.

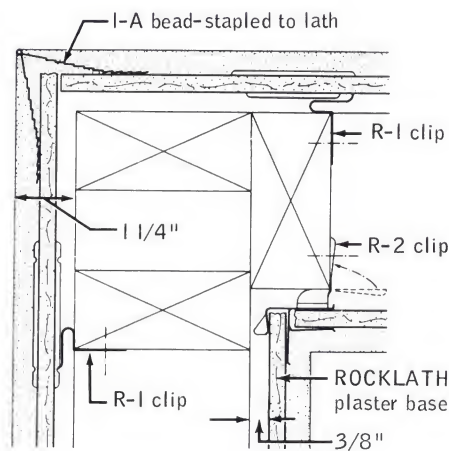
floor attachment

R-SF resilient-
starter finisher
clip 16" o.c.

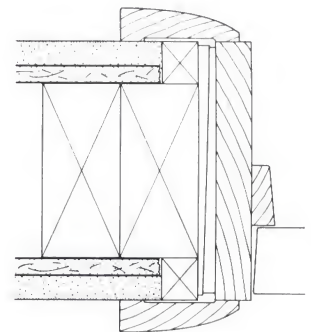
top set

caulk

wood

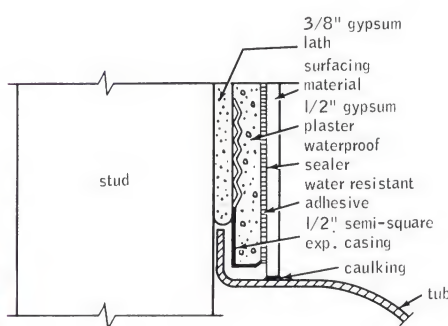


corner

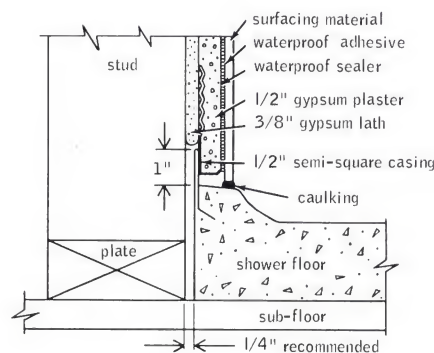


wood door frame

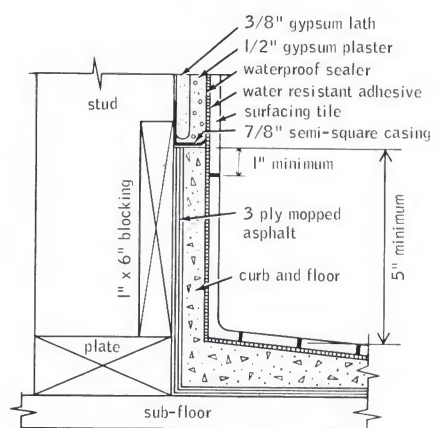
bath and shower details



steel tub



precast shower receptor



hot mopped sub-pan

specifications (continued from page 2)

troffers, etc., cause a concentration of stresses in the plaster. The use of additional reinforcement is recommended at the weakened area to resist and distribute concentrated stresses where, in the judgment of the architect, for reasons of economy and design, a control joint is not otherwise specified.

4. Where contact or furred ceilings occur under roof construction, the plenum or attic space should be vented according to recommended engineering practice.

5. To retain maximum sound isolation, the integrity of the partition or ceiling should not be voided by openings, such as doors, electrical outlets, medicine cabinets, vents etc., so as to create sound leaks. Use sand aggregate only; do not use lightweight aggregates. Caulk under runners, around openings, and partition perimeter.

6. Gypsum plaster can be satisfactorily used with radiant heating installations; see separate U.S.G. System Folder on U.S.G. Plaster Cable Heat Ceilings.

7. Special precautions should be taken for proper application and use of ROCKLATH and gypsum plaster in bath and shower areas (see details, page 3).

8. Where corrosion due to high humidity and/or saline content of aggregates is possible, the use of zinc alloy accessories is recommended.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

materials

See U.S.G. product folders in this series:

Gypsum Plasters Folder for Plaster Specifications.

Plaster Bases & Accessories Folder for General Lathing Specifications.

Paint Products Folder for Paint Specifications.

All materials herein specified shall be manufactured by the United States Gypsum Company, unless otherwise indicated.

- a. ROCKLATH Plaster Base ($\frac{3}{8}$ " ($\frac{1}{2}$ ") (Plain) (Perforated) (FIRECODE†) (Insulating) (16"x48"), (16"x96"), (24" x specified lengths).
- b. BRIDJOINT B-1 Field Clip.
- c. BRIDJOINT B-2 Corner Clip.
- d. USG Cornerite (2"x2") (3"x3").
- e. USG Casing Bead (specify type from page 2).
- f. USG Corner Bead (specify type from page 2).
- g. USG Junior Diamond Mesh Metal Lath.
- h. Nails—13 ga. ($1\frac{1}{8}$ " ($1\frac{1}{4}$ ") long, $\frac{1}{16}$ " flat head blued (not available from U.S.G.).
- i. Staples—16 ga. galvanized flattened wire, flat crown $\frac{1}{16}$ " wide, (1") ($1\frac{1}{8}$ ") legs having divergent points (not available from U.S.G.).
- j. USG R-1 Resilient Field Clip.
- k. USG R-2 Resilient Corner Clip.
- l. USG R-SF Resilient Starter-Finisher Clip.
- m. 3" THERMAFIBER Insulating Wool Blankets.
- n. USG Acoustical Sealant.

†Available on Pacific Coast only.

plaster base attachment**a. direct attachment**

ROCKLATH Plaster Base shall be applied face out with the long dimension across the framing members and with end joints, staggered in successive courses. Ends of lath shall fall between framing members and be aligned and engaged using the BRIDJOINT B-1 Field Clip. All joints shall be butted together and the lath shall be accurately cut and neatly fitted around all electrical outlets, openings, etc. Apply BRIDJOINT B-2 Corner Clip at all interior angles.

Fasteners shall be (nails) (staples). For $\frac{3}{8}$ " ROCKLATH and maximum support spacing of 16" o.c. use 4 fasteners, 5" o.c., per 16" width of lath; 5 per 24" width of lath. For $\frac{1}{2}$ " ROCKLATH and maximum support spacing of 24" o.c. use 5 fasteners, 4" o.c., per 16" width of lath; 6 per 24" width of lath. Fasteners shall be placed at least $\frac{3}{8}$ " from edges and ends of lath. Nail heads shall be flush with face of lath. Staples shall be driven with the crown parallel to the framing member in such a manner that the crown bears tightly against the lath but does not cut the face paper.

All interior plaster angles shall be the floating type and shall have the first fastener spaced nominally 6" from corner. Use specified fastening in the remainder of the wall and ceiling area.

b. resilient attachment with R-1 clips

$\frac{3}{8}$ " ROCKLATH Plaster Base shall be applied with end joints staggered and with $\frac{1}{4}$ " space between the lath and the adjacent surfaces around the partition perimeter. R-SF Clips shall be nailed to the framing 16" o.c. at the top and bottom to provide attachment for the first and last courses of ROCKLATH. Gypsum lath shall be attached to the framing members with USG R-1 Resilient Clips nailed to framing and placed at every intersection of ROCKLATH edges with framing members. At corners, attach ROCKLATH with USG R-2 Resilient Clips so it is secured by the clips spaced 16" o.c. in both directions. USG Corner Beads and other specified lathing accessories shall be stapled only to ROCKLATH Plaster Base.

lathing accessories

a. **Metal Corner Bead No.** () shall be provided on all external plaster corners, and shall be in single lengths where the length of the corner does not exceed standard stock lengths. Fasten securely with galvanized staples, etc., spaced not over 8" o.c.; staggered in two wings.

b. **Casing Bead No.** () shall be installed where indicated. Ends shall be accurately cut and mitered and the casing bead shall provide full plaster grounds when securely installed. Staple in place.

c. **Reinforcing.** Install a strip of diamond mesh lath over joints between dissimilar plaster bases. At all openings, reinforce the corners by stapling a 6" x 12" piece of diamond mesh lath diagonally across the corners.

d. **Caulking.** A non-hardening non-skinning resilient caulking compound shall be applied under plates, around outlet boxes and in the $\frac{1}{4}$ " space between the lath and adjacent surfaces around the partition perimeter.

e. **Cornerite** (2"x2") (3"x3") shall be installed in all interior plaster angles. Staple to the lath only (required for nail-on method only).

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (plaster and metal products); ROCKLATH, FIRECODE (plaster base); BRIDJOINT (metal clips); THERMAFIBER (insulation products); RED TOP, STRUCTO-LITE (plaster).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Wd Stud— $\frac{5}{8}$ " SHEETROCK FIRECODE or W/R FIRECODE "C" gypsum wallbd—2x4 16" or 24" o.c.—wallbd nailed 7" o.c.— $\frac{1}{8}$ " cem ctd nails—joints fin—perim caulked wt 7 width 4 $\frac{1}{2}$ "	UL Des 5-1 hr (f) UL Des 38-1 hr (f) USG-30-FT-G&H (s)		34	111	UL Des 38-1 hr. based on 24" stud spacing	a-1391
1 hr. est	Stag Wd Stud— $\frac{5}{8}$ " SHEETROCK FIRECODE gypsum wallbd—2x3 16" o.c.—2x3 plates 1" apart—wallbd att with 1 $\frac{1}{4}$ " Type W screws 16" o.c.—2" THERMAFIBER ins wool blkts one side—perim caulked wt 8 width 7 $\frac{1}{2}$ "	USG-106-FT-G&H (s) USG-155-FT-G&H (s)	51 49		153	Best value in 50 stc range for this type of party wall. 155-FT based on 2x6 common plate	a-1391
1 hr. est	Wd Stud— $\frac{1}{2}$ " SHEETROCK FIRECODE "C" gypsum wallbd—2x4 16" o.c.—2 layer—base layer $\frac{1}{4}$ " SHEETROCK gypsum wallbd appl vert with 4d ctd nails— $\frac{1}{2}$ " wallbd face layer strip lamin—joints stag & fin—perimeter caulked wt 8 width 5 $\frac{1}{2}$ "	TL-69-52 (s)		45	160		a-1391
1 hr. est	Stag Wd Stud— $\frac{5}{8}$ " SHEETROCK FIRECODE "C" gypsum wallbd—2x4 16" o.c. on 2x6 com plate—wallbd att with 6d ctd nails 7" o.c.—2" THERMAFIBER ins wool blkts one side—perim caulked—joints fin wt 8 width 6 $\frac{1}{2}$ "	TL-69-213 (s)		45	140		a-1391
1 hr.	Wd Stud—2 layers $\frac{5}{8}$ " SHEETROCK gypsum wallbd lamin & nailed—2x4 16" o.c.—joints fin wt 7 width 5 $\frac{1}{2}$ "	T-118-48-OSU (f) TL-57-14 (s)	38		133		a-1391
2 hrs.	Wd Stud—2 layers $\frac{5}{8}$ " SHEETROCK FIRECODE or W/R FIRECODE "C" gypsum wallbd—2x4 16" o.c.—base layer 6d nails 6" o.c.—face layer lamin or nailed to base—joints fin wt 12 width 6 $\frac{1}{2}$ "	UL Des 4-2 hr (f)		N/A	161	Basic 2-hour partition construction	a-1391
2 hrs. est	Wd Stud—2 layers $\frac{5}{8}$ " SHEETROCK FIRECODE "C" gypsum wallbd—2 rows 2x4 16" o.c. on sep plates 1" apart—base layer att with 6d ctd nails 16" o.c.—face layer att with 7d ctd nails 7" o.c.—perim caulked—joints fin wt 13 width 10 $\frac{1}{4}$ "	TL-69-214 (s)		51	186		a-1391
2 hrs. est	Stag Wd Stud—2 layers $\frac{5}{8}$ " SHEETROCK FIRECODE "C" gypsum wallbd—2x4 16" o.c. on 2x6 com plate—base layer att with 6d ctd nails 6" o.c.—face layer att with 8d ctd nails 8" o.c.—perim caulked—joints fin wt 13 width 8 $\frac{1}{2}$ "	TL-69-211 (s)		47	182		a-1391

wall furring application

—	Wood furring strips 16" o.c.— $\frac{1}{2}$ " Insulating SHEETROCK, joints finished	—	—	—	100	Surface not isolated from structural stresses	a-1391
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description

These basic drywall assemblies offer economical, quickly erected load-bearing walls wherever fire protection is desired with wood framing—also usable for wall furring. Variations of the systems meeting other special requirements are outlined below.

Single Layer—a basic load-bearing construction suitable where SHEETROCK SW Gypsum Wallboard is applied direct to wood framing—either vertically, with long edges parallel to framing, or horizontally with long edges at right angles to framing members. Horizontal application, recommended except for predecorated wallboard, provides greater strength, reduces joint treatment and blocking needed, compensates for unevenness in framing alignment. Fastening of wallboard is by four alternate methods:

1. **Standard single nailing**—spacing c. to c. 7" to 8".
2. **Double nailing**—for minimizing defects due to loosely nailed wallboard. First nails spaced 12" o.c., followed by second nails within 2" of first.
3. **Screw application**—best known insurance against fastener pops caused by loosely attached board. 1 $\frac{1}{4}$ " USG® Brand Screw Type W is used.
4. **Adhesive nail-on**—continuous bead of DURABOND® 200 or 300 Adhesive applied to framing plus supplementary nailing; improves bond strength by 50% to 100%, greatly reduces face nailing needed.

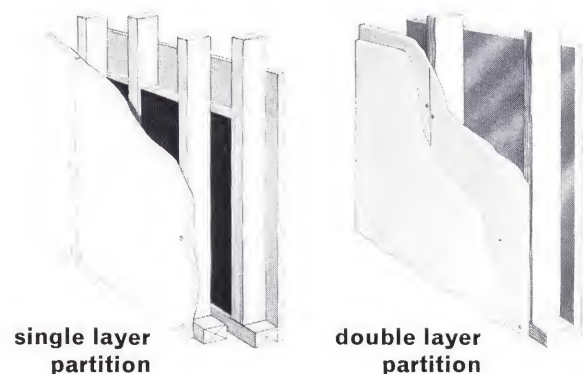
Floating Interior Angle System—another proven method to upgrade job quality. This application of board effectively

reduces nail pops and angle cracking which may result from stresses at intersections of walls and ceilings.

This assembly is completed by finishing with a U.S.G. joint treatment system and decorating—both steps unnecessary in walls, however, when predecorated vinyl-surfaced TEXTONE® Gypsum Panels are used.

Double Layer—systems consisting of a face layer of SHEETROCK Gypsum Wallboard job-laminated and/or nailed to a base layer of gypsum board and directly attached to wood framing. Because the systems minimize the use of mechanical fasteners in the face layer, finer appearance is the result—together with

(continued on page 4)



single layer partition

double layer partition

components

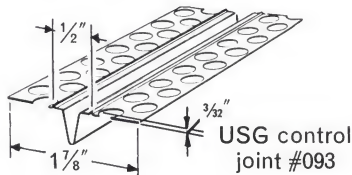
see "gypsum wallboard and joint treatment" product catalogs for full description on accessories & sizes



SHEETROCK SW
gypsum wallboard



beveled edge, vinyl coated
TEXTONE gypsum panel



USG control
joint #093



1 1/4" USG brand screw—type W—bugle head



1 1/2" USG brand screw—type G—bugle head



1 1/4" or 1 3/8" GWB-54 annular ring nail



2 1/4" 7d gypsum wallboard nail cement coated



1 7/8" 6d gypsum wallboard nail cement coated



2 3/8" 8d gypsum wallboard and nail cement coated



1 3/8" 4d gypsum wallboard nail cement coated

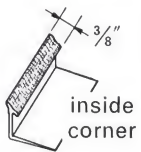


1 7/8" USG matching color nail (steel)

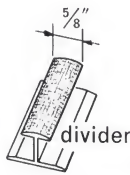
TEXTONE moldings



outside
corner



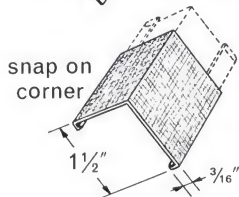
inside
corner



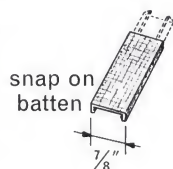
divider



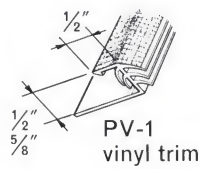
end
cap



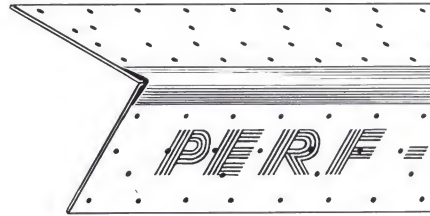
snap on
corner



snap on
batten



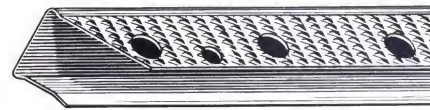
PV-1
vinyl trim



no. 100 PERF-A-BEAD* reinforcement



DUR-A-BEAD* corner reinforcement



no. 200-A USG metal trim



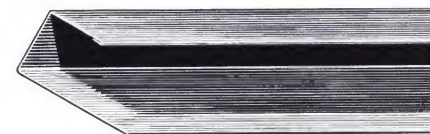
no. 200-B USG metal trim



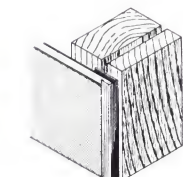
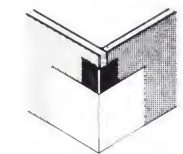
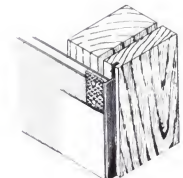
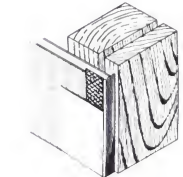
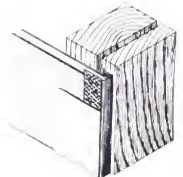
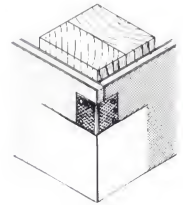
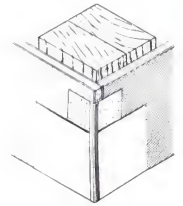
no. 200-C USG metal trim



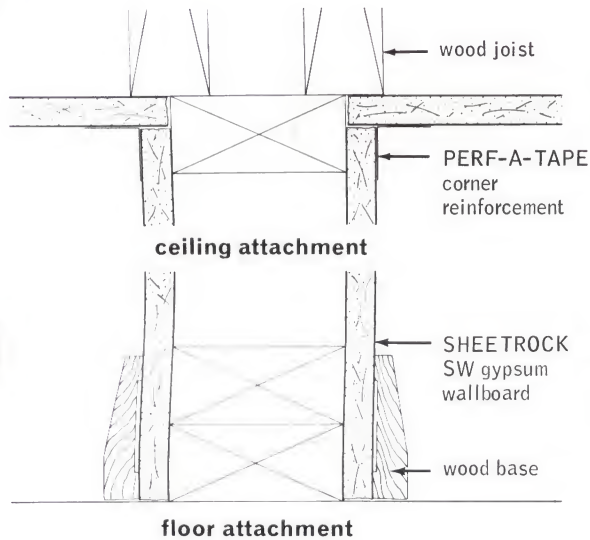
no. 900 USG corner reinforcement



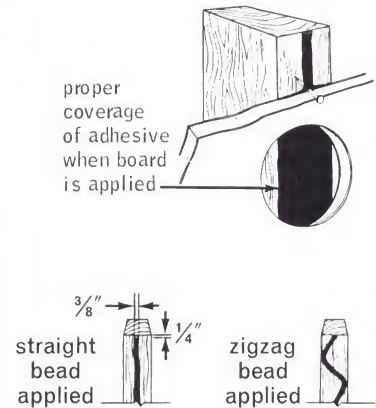
USG metal trim



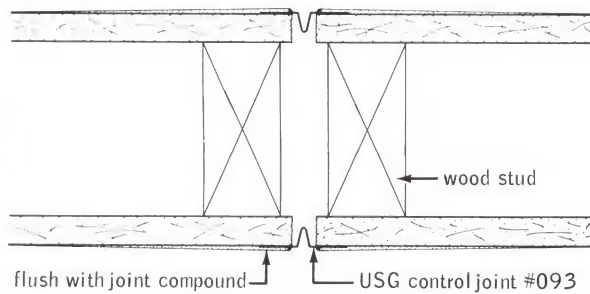
details/single layer partitions



adhesive nail-on application

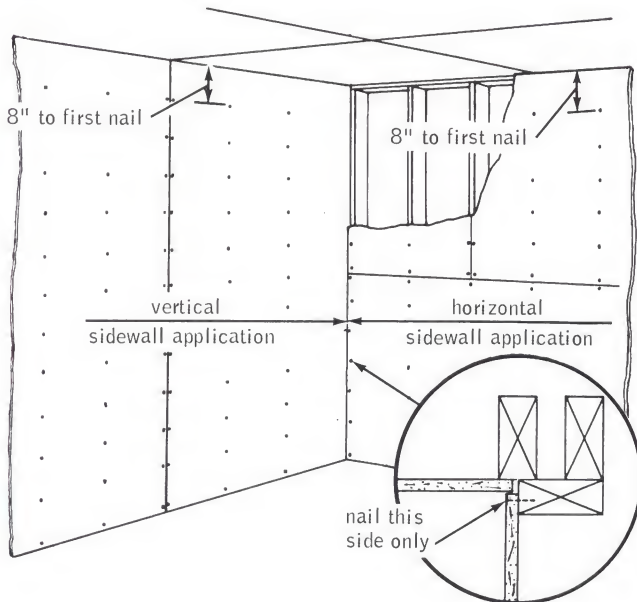


wall control joint

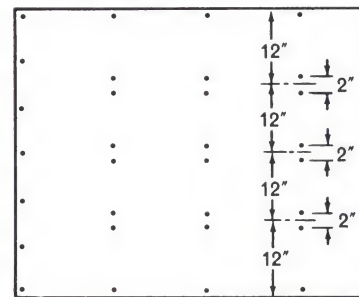


Full information on systems shown here is available in USG Gypsum Dry-wall Construction Handbook, WB-52

floating interior angle system

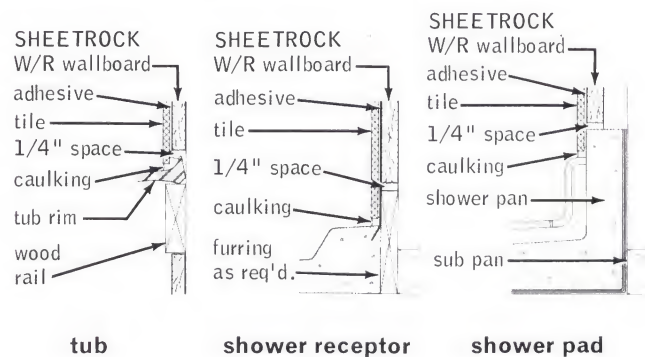


double nailing application



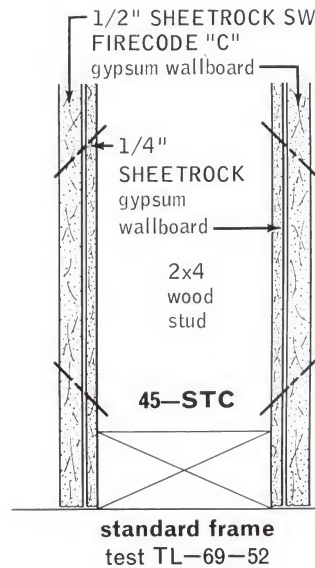
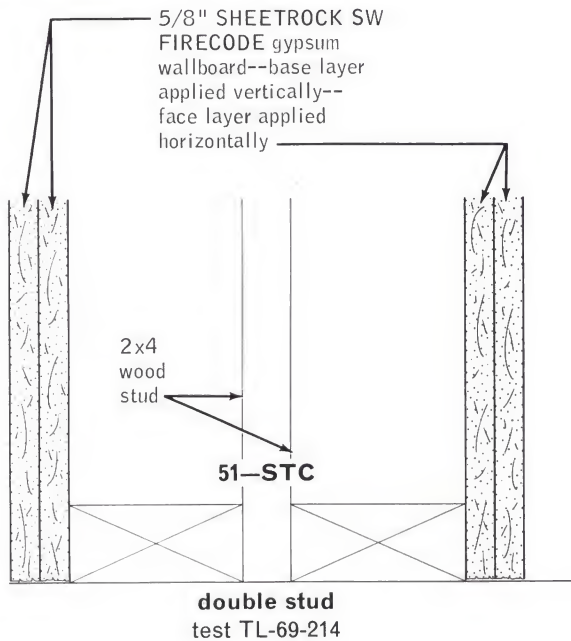
tub and shower details

single layer application SHEETROCK W/R wallboard



details/double layer partitions

sound isolating partitions

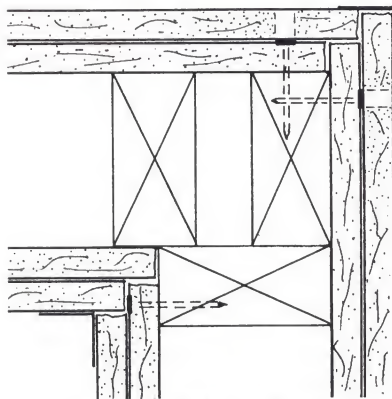


sheet lamination



strip lamination

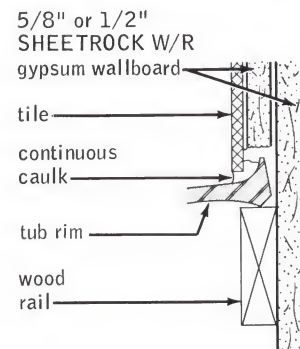
corner framing details



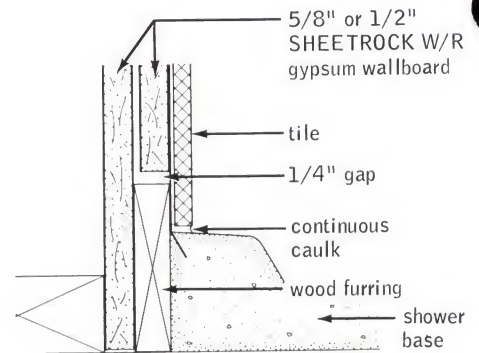
inside/outside corner

tub and shower details

double layer application SHEETROCK W/R wallboard



tub



shower receptor

description (continued from page 1)

greater strength and higher fire and sound resistance.

A base layer of SHEETROCK Wallboard or BAXBORD* Gypsum Backing Board is nailed or screwed to the framing. The SHEETROCK face layer is applied to the base layer, then finished with joint treatment and decorated, or predecorated TEXTONE Gypsum Panels are used as face layer.

Three alternate framing methods with wood studs spaced 16" o.c. provide load-bearing assemblies developed to meet fire resistance and sound control requirements in partitions:

1. Conventional 2x4 stud construction, two layers 5/8" SHEETROCK SW FIRECODE Gypsum Wallboard, or FIRECODE or regular SHEETROCK SW over base layer of 1/4" SHEETROCK Gypsum Wallboard. These offer higher sound and/or fire ratings than did the original double wall assembly employing two layers of 3/8" SHEETROCK.
2. Double row of 2x3 staggered studs set on separate plates 1" apart, with single layer of 5/8" SHEETROCK SW FIRECODE

board and 2" THERMAFIBER* Insulating Wool Blankets in the cavity. This provides optimum in sound isolation, STC of 51, where one-hour fire resistance (load bearing) is required. With 2x4 staggered studs on a common 2x6 plate and double layer 5/8" SHEETROCK FIRECODE "C" Board, 2-hour fire resistance is obtained.

3. Double row of 2x4 studs set on separate plates 1" apart, with double layer 5/8" SHEETROCK FIRECODE "C" offers the sound isolation, 51 STC, 2-hour fire resistance and chase space required for party walls in garden apartments.

Adhesive lamination of face layer to base layer, when both are gypsum wallboard, is by either of two methods: (a) **strip lamination**—USG or PERF-A-TAPE Joint Compound-Taping applied in vertical strips 24" o.c. and supplementary 1 1/2" USG Brand Screws Type G, or (b) **sheet lamination**—adhesive applied over the entire wallboard surface with supplementary Type G screws or temporary supports until adhesive dries.

When a fire rating is not required, contact bonding of face layer with DURABOND Adhesive is preferred. Either DURABOND

400 (notched spreader applied) or DURABOND 600 (spray or roller applied) is used with fasteners 16" o.c. at top and bottom of wall panels.

Gypsum wallboard for these assemblies is available in four thicknesses and 11 types. SHEETROCK SW Gypsum Wallboard has an eased edge specially designed to overcome joint deformation. SHEETROCK SW FIRECODE Wallboard, with a specially formulated core, obtains higher fire-resistance ratings than plain SHEETROCK Wallboard. SHEETROCK W/R (water/resistant) Wallboard is an ideal tile base for tub and shower areas. Insulating (foil back) SHEETROCK SW Wallboard is effective as a vapor barrier, offers significant insulating value, and provides economical furring for exterior walls.

SHEETROCK Wallboard is economically screw-applied to channel type galvanized metal studs set in runners. Refer to separate USG Metal Stud Drywall Partition System Folder in this series for detailed information.

function and utility

Sound Isolation—Excellent choices available for party wall use and other critical sound requirements—STC as high as 53 (see table, page 1). Where a single layer party wall with maximum sound loss is required, best value in its class is the staggered 2x3 stud partition (see table, page 1) with STC of 51. Erected on plates 1" apart, partition has single-layer $\frac{5}{8}$ " SHEETROCK FIRECODE wallboard both sides and 2" THERMAFIBER* Insulating Wool Blankets in one side. A non-hardening, non-skinning caulking compound was used to obtain the sound ratings shown.

Fire Resistance—2-hour rating with double layer of $\frac{5}{8}$ " SHEETROCK FIRECODE applied to wood studs. 1-hour rating for single-layer partition with $\frac{5}{8}$ " SHEETROCK FIRECODE gypsum wallboard (see table, page 1).

Low Maintenance—Double layer wallboard systems offer easy decoration, reduce possibility of nail "pops" and discoloration over nail heads.

Light Weight—SHEETROCK for these assemblies weighs approximately 2.4 psf in $\frac{5}{8}$ " thickness, 1.9 in $\frac{1}{2}$ ", 1.5 in $\frac{3}{8}$ " and 1.1 in $\frac{1}{4}$ ". Single-layer partition assemblies weigh 6 to 8 psf.

limitations

1. Maximum frame spacing:

Double layer: 16" o.c. if fire rating is required; 24" for other applications.

Single layer: $\frac{3}{8}$ " SHEETROCK, 16" o.c.; $\frac{1}{2}$ " and $\frac{5}{8}$ " SHEETROCK, 24" o.c.

2. SHEETROCK Wallboard is not recommended where exposure to moisture is extreme or continuous. Specially formulated SHEETROCK W/R Wallboard is recommended as a base for wall tile in bothrooms and other high-moisture areas.

3. Direct attachment to wood framing with fastener penetration into wood exceeding 1" is not recommended except where required to meet fire rating.

specifications—notes to architect

1. For adhesive applications of TEXTONE Gypsum Panels, only DURABOND Adhesives are recommended; other adhesives may not be compatible with the vinyl surface.

2. Wallboard surfaces should be isolated with control joints or other means where: (a) partition abuts a structural element (except floor) or dissimilar wall or ceiling; (b) construction changes within the plane of the partition; (c) partition run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.

Wallboard surfaces should not be firmly anchored across the flat grain of wide dimensional lumber such as floor joists and headers. Float wallboard over these members using resilient channels or provide a control joint to counteract wood shrinkage.

3. Penetrations of the wallboard diaphragm, such as door frames and borrowed-light openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

4. Where these partitions are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs, such as at electrical boxes, and at the perimeter of the partition. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. Door and borrowed-light openings are not recommended in sound control partitions.

5. The $1\frac{1}{2}$ " USG Brand Screw Type G is not recommended for fastening double layer laminated $\frac{3}{8}$ " wallboard. In this assembly, use scaffold nails driven through gypsum blocks into the framing at third points vertically, or temporary shoring.

6. **Ceramic Tile**—SHEETROCK W/R Gypsum Wallboard is recommended as a base for the adhesive application of ceramic, metal and plastic tile.

7. **Wood Framing Requirements**—Wood framing meeting the minimum requirements of FHA, ALSC and local building codes is necessary for proper performance.

8. During periods of low outside temperature, condensation may form on exterior walls, collecting airborne dirt to produce photographing or shadowing over fasteners and furring. This natural phenomenon occurs through no fault in the products.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

general conditions

In cold weather and during the period of wallboard application and joint finishing, temperatures within the building shall be maintained uniformly within the range of 55° to 70° F. Adequate ventilation shall also be provided to eliminate excessive moisture within the building during this same period.

All materials, as specified below, shall be delivered to the job in their original, unopened containers or bundles; stored in a place providing protection from damage and exposure.

The installation and application of all materials shall be in accordance with the latest printed directions or specifications of United States Gypsum Company.

sound transmission loss—db

test no.	method	band center frequency—Hz																				STC	
		125	160	175	200	250	315	350	400	500	630	700	800	1000	1250	1400	1600	2000	2500	2800	3150		4000
USG-106-FT-G & H	Lab	28	—	39	—	43	—	47	—	53	—	57	—	60	—	64	—	59	—	60	—	65	51
TL-69-214	Lab	31	35	—	34	39	44	—	48	51	53	—	56	56	59	—	57	50	53	—	59	59	51
USG-155-FT-G & H	Lab	26	—	34	—	44	—	47	—	50	—	52	—	53	—	57	—	58	—	55	—	60	49
TL-69-211	Lab	30	33	—	35	40	40	—	42	44	46	—	49	51	52	—	52	48	48	—	53	57	47
TL-69-52	Lab	21	28	—	34	35	39	—	41	41	46	—	49	51	54	—	56	55	53	—	52	55	45
TL-69-213	Lab	25	31	—	35	37	41	—	40	40	43	—	46	46	51	—	51	47	47	—	51	54	45
USG-30-FT-G & H	Lab	17	—	16	—	34	—	30	—	35	—	40	—	42	—	45	—	38	—	39	—	44	34

materials

See U.S.G. Product Folders in this series: Joint Treatment Folder for Joint Treatment Specifications; Paint Products Folder for Paint Specifications; Gypsum Wallboard Folder for information on Wallboard System Components.

All materials herein specified shall be manufactured by the United States Gypsum Company, unless otherwise indicated.

- a. Faceboards—48" wide—($\frac{3}{8}$ ") ($\frac{1}{2}$ ") ($\frac{5}{8}$ ") thick (Regular) (Insulating) SHEETROCK SW Wallboard; ($\frac{1}{2}$ ") ($\frac{3}{8}$ ") thick SHEETROCK SW FIRECODE ("C") ("X") Wallboard; $\frac{1}{2}$ " thick TEXTONE Gypsum Panels (type) (finish); ($\frac{1}{2}$ ") ($\frac{3}{8}$ ") thick SHEETROCK W/R Wallboard; $\frac{5}{8}$ " thick SHEETROCK W/R FIRECODE "C" Wallboard—lengths as required.
- b. Backing Board—48" wide—($\frac{1}{4}$ ") ($\frac{3}{8}$ ") ($\frac{1}{2}$ ") ($\frac{5}{8}$ ") thick (Regular) (Insulating) SHEETROCK SW Wallboard; ($\frac{1}{2}$ ") ($\frac{3}{8}$ ") thick SHEETROCK SW FIRECODE Wallboard; ($\frac{3}{8}$ ") ($\frac{1}{2}$ ") ($\frac{3}{8}$ ") thick BAXBORD Gypsum Backing Board; ($\frac{1}{2}$ ") ($\frac{3}{8}$ ") thick BAXBORD FIRECODE; ($\frac{1}{2}$ ") ($\frac{3}{8}$ ") thick SHEETROCK W/R Wallboard; $\frac{5}{8}$ " thick SHEETROCK W/R FIRECODE "C" Wallboard—lengths as required.
- c. Joint Treatment—(select a U.S.G. Joint System).
- d. Adhesive
 - (for Fire-Rated Double Layer Systems)—USG or PERF-A-TAPE Joint Compound-Taping.
 - (for Non-Rated Double Layer Systems)—DURABOND 400 or 600 Adhesive.
 - (for Adhesive Nail-On Board Application)—DURABOND 200 or 300 Adhesive.
- e. Fasteners
 - USG Brand Screws ($1\frac{1}{4}$ " Type W) ($1\frac{1}{2}$ " Type G).
 - Nails (specify type from Pg. 2—not available from U.S.G. except for USG matching color nails).
 - Staples—16 ga. flat galvanized wire, $\frac{1}{2}$ " wide, (1") ($1\frac{1}{8}$ ") ($1\frac{1}{4}$ ") long with divergent points (obtain locally).
- f. USG Metal Trim (specify type from Pg. 2).
- g. TEXTONE Moldings (for TEXTONE Gypsum Panels)—to match specified finishes as required.
- h. USG Corner Bead—DUR-A-BEAD, PERF-A-BEAD, ECONO, No. 900 Corner Reinforcement (specify type from Pg. 2).
- i. USG Control Joint No. 093.
- j. Wallboard Sealant (for SHEETROCK W/R Wallboard)—SHEETROCK Brand W/R Sealant.
- k. THERMAFIBER Insulating Wool Blankets (thickness).
- l. Caulking—USG Acoustical Sealant.

single layer wallboard erection (treated joints)

All ends and edges of all gypsum wallboard shall occur over nailing members, except when joints are at right angles to framing members as in horizontal application or when end joints are to be backblocked.

SHEETROCK SW Wallboard shall be applied first to the ceiling and then to the walls. To minimize end joints, use wallboard of maximum practical lengths. Boards shall be brought into contact, but shall not be forced into place. Where ends or edges abut, they shall be neatly fitted.

End joints shall be staggered. Joints on opposite sides of a partition shall be so arranged as to occur on different studs.

Wallboard shall be attached to framing supports by: (Standard Single Nailing Method) (Adhesive—Nail-On Method) (Double Nailing Method) (Power-driven USG Brand Screws).

Standard single nailing method—Attach wallboard with nails herein specified spaced not to exceed 8" o.c.

Adhesive—nail-on method—Attach wallboard with DURABOND (200) (300) Adhesive applied in a continuous $\frac{3}{8}$ " bead at center of attachment to face of framing members. Where two pieces of wallboard meet on a framing member, apply a serpentine bead with an 8" repeat pattern permitting adhesive contact to both panels. Do not apply adhesive to members such as bridging, diagonal bracing, etc., into which no supplemental fasteners will be driven. Immediately following contact of wallboard to adhesive, apply fasteners per manufacturer's directions.

Double-nailing method—Attach wallboard with nails herein specified. Apply first nails spaced not to exceed 12" o.c. with second nails in close proximity (2").

Power-driven USG Brand Screws—Attach wallboard with $1\frac{1}{4}$ " USG Brand Screws Type W—spaced not to exceed 12" o.c. For walls with studs 16" o.c., screws may be applied not to exceed 16" o.c.

Fasteners shall be spaced at least $\frac{3}{8}$ " from edges and ends of wallboard. Fasteners on all framing members shall be spaced and driven as recommended for specified fastening method.

While fasteners are being driven, wallboard shall be held in firm contact with underlying support. Attachment should proceed from central portion of wallboard towards ends and edges. When nails are used for attaching gypsum wallboard, nails shall be driven home with heads slightly below surface of wallboard, in a dimple formed by crowned face of hammer striking last blow. A nail set shall not be used, and care shall be taken to avoid breaking face paper.

Cut ends or edges or cutouts within field of wallboard shall be done in a workmanlike manner.

single layer wallboard erection

(predecorated TEXTONE Gypsum Panels)

Panels shall be applied vertically to framing spaced (16") (24") o.c. Any panels used less than full width shall be positioned with cut edge at corner.

Nail application—Color-matched nails shall be driven with plastic-headed hammer at 8" o.c. spacing into all studs. Edge nailings shall be at least $\frac{3}{8}$ " from panel edge.

Adhesive application—Specified adhesive shall be applied in continuous $\frac{3}{8}$ "x $\frac{3}{8}$ " bead to center of all stud faces. After partial drying of adhesive, panels shall be attached, impacted, and mechanically fastened 16" o.c. along ceiling and floor edges of panels.

Panels shall be finished with TEXTONE Moldings matching panel finish per manufacturer's directions.

single layer wallboard erection

(predecorated TEXTONE Smoothwall Panels)

Panels shall be applied vertically to wood framing spaced 16" o.c. using a combination of DURABOND (200) (300) Adhesive at studs between joints and $1\frac{1}{4}$ " Type W screws spaced 12" o.c. or $1\frac{1}{4}$ " GWB-54 nails spaced 8" o.c. at panel joints.

Joints shall be finished level and smooth with two or three coats of DURABOND 90 Joint Compound. At long edges of each panel, loose flaps of covering material shall be secured with wheat paste over finished wallboard joint, with long flaps overlapping the shorter. Fabric shall be smoothed with a broad knife, trimmed and rolled to form a neat tight butt joint.

Outside corners shall be finished with TEXTONE Moldings matching panel finish per manufacturer's directions.

single layer wallboard erection

(SHEETROCK W/R Wallboard)

1. Framing members shall be plumb and true. If necessary, fur out studs around tub enclosure and shower stall so that inside face of fixture lip is flush with gypsum wallboard.

Appropriate blocking, headers, or supports shall be provided to support tub and other plumbing fixtures, and to receive soap dishes, grab bars, towel racks, or similar items as may be required. SHEETROCK W/R is designed for use on framing 16" o.c. When framing is more than 16" o.c., or when gypsum wallboard base is to be surfaced with ceramic tile over $\frac{5}{16}$ " thick, suitable blocking shall be installed between studs. One row of blocking shall be placed approximately 1" above top of tub or receptor and another row at mid-point between base and ceiling.

2. Shower pans or receptors, shall have an upstanding lip or flange a minimum of 1" higher than water dam or threshold contained in entry way to shower, and shall be installed prior to erection of gypsum wallboard.

3. SHEETROCK W/R (Water-Resistant) Wallboard shall be applied as a base for ceramic, metal, or plastic tile in all areas where tile is to be used as a finished surface, unless otherwise indicated.

a. Wallboard shall be applied horizontally with factory (paper bound) edge abutting top edge of a temporary wood strip (or nail spacer), which shall allow a minimum $\frac{1}{4}$ " space between lip of tub, shower pan, or receptor and gypsum wallboard.

b. Wallboard shall be fastened with nails 8" o.c. maximum and screws 12" o.c. maximum. Exception: Where ceramic tiles over $\frac{5}{16}$ " thick are to be used as a surfacing material, nails shall be spaced 4" o.c. maximum and screws 8" o.c. maximum. Alternately, DURABOND 200 Adhesive with recommended supplementary nail or screw attachment may be used in lieu of conventional nailing where tile $\frac{5}{16}$ " or less in thickness is used.

c. All cut edges, utility holes and joints, including those at all angle intersections, shall be treated with SHEETROCK Brand W/R Sealant prior to installation.

d. In areas to be tiled, no joints or angles shall be taped with conventional wallboard joint systems.

4. The tile adhesive shall be approved by the manufacturer of the surfacing material for use over gypsum wallboard. Prior to erection of tile, all openings around pipes, fixtures, etc., shall be caulked flush with waterproof, non-hardening caulking compound.

Tile shall then be applied down to top edge of shower floor or tub and installed so as to overlap lip or return of tub or receptor.

Tile shall be applied to completely cover following areas:

a. over tubs without shower heads—6" above rim of tub.

b. over tubs with showers—minimum of 5' above rim or 6" above height of shower head, whichever is higher.

c. shower stalls—minimum of 6' above shower dam or 6" above shower head, whichever is higher.

d. all jambs in shower stall shall be covered to a like height.

e. all areas extending beyond face of tub shall be covered a minimum of 4" from face and from required height to finished floor of bathroom (below rim of tub). Areas beyond an exterior corner are excluded.

Regardless of type of tile used, the following precautions shall be taken:

a. completely and continuously grout all tile joints.

b. apply nonsetting caulking compound between wall surfacing materials and shower floor surfacing or tub rim.

c. caulk angle between tub edge and surfacing material.

5. Painting shall be done in accordance with the following recommendations:

a. **prime coat**—W/R Wallboard shall be sealed with a solvent-thinned wallboard primer-sealer or SHEETROCK Sealer.

b. **finish coat**—For finish or decorative coats, solvent-thinned enamels, semi-gloss or full gloss, shall be applied.

6. In moist areas where wallpaper is desired, priming as per 5, a, above, is recommended. The primed surface shall be properly sized for good adhesion of wallpaper to primer.

floating interior angle system

(For Single Layer Erection and Double Layer—Base Layer Erection.)

a. All wallboard shall be applied to maintain firm contact at ceiling line and to provide support to ceiling boards previously installed. Along horizontal angle, first nail or screw shall be nominally 8" from ceiling intersection. At all vertical angles, omit only corner fastening of board that is first applied and overlapped in the angle. The overlapping board shall be nailed or screwed in conventional manner. Conventional nail spacing shall be used in remainder of sidewall area.

b. Use of double nailing in conjunction with floating interior angle system does not alter nailing requirements for angles specified above. The system does not eliminate need for conventional framing requirements and ordinary wood back-up or blocking at vertical internal angles.

single layer wall furring application

Suitable wood furring strips shall be attached to exterior walls at 16" o.c. $\frac{1}{2}$ " Insulating SHEETROCK SW Wallboard shall be applied with the long dimension at right angles to furring strips and fastened with 1 $\frac{1}{4}$ " USG Brand Screws Type W spaced 12" o.c. Joints and fastener heads shall be finished in the prescribed manner. Where there is a possibility of water penetration through the walls, an asphalt felt strip shall be installed between furring strips and wall surface.

double layer—base layer erection (gypsum wallboard)

Walls—Base layer gypsum wallboard shall be applied with long edges parallel to and centered on framing members. Wallboard shall be attached to framing supports by: (screw) (nail) (staple) attachment, as follows:

Screw attachment—The base layer shall be screw-applied to framing members with power-driven 1 $\frac{1}{4}$ " USG Brand Screws—Type W spaced not to exceed 12" o.c. For walls with studs 16" o.c., screws may be applied not to exceed 16" o.c.

Nail attachment—The base layer shall be nailed to framing members with the recommended nails for the wallboard thickness and type used, spaced 8" on walls (spaced 12" if double nailing used). The nailheads shall be driven flush with surface of board.

Staple attachment—The base layer shall be attached to framing members with power-driven staples of type above specified, spaced 8" on walls.

Screws shall be staggered on adjoining edges or ends. Nails shall not be staggered on adjoining edges or ends. While fasteners are being driven, wallboard shall be held in firm contact with underlying support. Attachment shall proceed from central portion of wallboard toward ends and edges.

double layer—face layer erection (treated joints)

Gypsum wallboard of maximum practical lengths shall be used in order to minimize end joints. Boards shall be loosely butted and neatly fitted at joints. All joints in face layer shall fall at least 10" from parallel joints in base layer.

Cut ends or edges, or cutouts within field of wallboard shall be done in a workmanlike manner.

After face layer panels have been cut to size, adhesive shall be mixed, applied and boards laminated in place according to the manufacturer's directions and in the following manner:

Sheet lamination—Mix USG or PERF-A-TAPE Joint Compound-Taping according to manufacturer's directions, and apply to the entire back surface of face boards and to the extreme edges of the board. Adhesive shall be applied in beads approximately $\frac{3}{8}$ " wide at the base and $\frac{1}{2}$ " high and spaced $4\frac{1}{2}$ " o.c. Face boards shall then be laminated to base layer boards using moderate pressure and (temporary nailing) (temporary supports) (USG Brand Screws) as follows:

1. **Temporary nailing** with nails that have at least $\frac{3}{4}$ " penetration into the framing shall be used to provide support for the face layer every 16" to 24" and insure adequate bond. When proper bond is developed between the two layers, nails shall be removed and nail holes properly dimpled before applying joint treatment.
2. **Temporary supports** consisting of bracing or shoring shall be used to provide support for the face layer every 16" to 24" and insure adequate bond. When proper bond is developed, supports shall be removed.
3. **USG Brand Screws** shall be used to permanently attach face boards to base layer boards. $1\frac{1}{2}$ " USG Brand Screws Type G shall be placed along the vertical edges spaced 36" o.c. maximum, within 2' of joint and 12" of both ends. Screws in the field of the board at the centerline of the panel shall occur 18" o.c. maximum and within 24" of both ends.

Strip lamination—Mix USG or PERF-A-TAPE Joint Compound-Taping according to manufacturer's directions and apply to base layer boards in strips, 2' o.c. running continuously from floor to ceiling. Each adhesive strip shall consist of four beads $\frac{1}{2}$ " high and $\frac{3}{8}$ " wide at the base and spaced $1\frac{1}{2}$ " to 2" o.c.

Face layer boards shall then be laminated to base layer boards using moderate pressure and $1\frac{1}{2}$ " USG Brand Screws Type G placed to penetrate the adhesive strips. Screws along vertical edges shall occur 36" o.c. maximum, within 2' of joint and 12" of both ends. Screws in the field of the board at the centerline of the panel shall occur 48" o.c. maximum and within 24" of both ends.

double layer—face layer erection**(predecorated TEXTONE gypsum panels)**

Panels shall be applied vertically according to manufacturer's directions. Any less than full width panels used shall be positioned with cut edge at corner. Boards shall be loosely butted and neatly fitted at joints. All joints in face layer shall fall at least 10" from parallel joints in base layer.

TEXTONE Panels shall be erected vertically using (DURABOND 400 Adhesive) (USG or PERF-A-TAPE Joint Compound-Taping) applied to base layer in vertical strips 24" o.c. Each strip shall consist of four beads $\frac{1}{2}$ " high and $\frac{3}{8}$ " wide spaced $1\frac{1}{2}$ " to 2" o.c., running continuously from floor to ceiling. With USG or PERF-A-TAPE Compound, panels shall be shored or braced 16" to 24" o.c. until adhesive has set. With DURABOND 400 Adhesive, panels shall be pre-bowed before erection, applied vertically and impacted 16" o.c. over entire surface.

(Optional) Panels shall be finished with TEXTONE Moldings matching panel finish per manufacturer's directions.

double layer—face layer erection**(predecorated TEXTONE Smoothwall Panels)**

(Select specification from Double Layer—Base Layer Erection and Single Layer Erection—TEXTONE Smoothwall Panels.)

double layer—SHEETROCK W/R wallboard erection

(Select specification from Double Layer—Base Layer Erection and Single Layer Erection—SHEETROCK W/R Wallboard.)

double layer—fastening for "floating corner" construction

At inside corners, only the overlapping panel of the base layer board shall be nailed to the corner framing, thus securing both boards into the corner without nailing of the face layer.

At outside corners, only the face layer board, not the base layer, shall be nailed to the corner framing. When nail-on corner reinforcement is to be applied, either temporary nailing of the face layer shall be used or the permanent nails shall be driven to penetrate the framing approximately $\frac{3}{4}$ " and shall be countersunk or concealed by the corner reinforcement.

wallboard accessories

a. **A U.S.G. Joint System** shall be used to finish all face board joints and internal angles formed by the intersections of walls and ceilings. DURABOND 90 Joint Compound shall be used to pre-fill abutting tapered edges of SHEETROCK SW Wallboard face layers.

b. **Metal Corner Bead No. ()** shall be securely installed at all external corners, and shall be in single lengths where the length of the corner does not exceed standard stock lengths. At least three coats of joint compound shall be applied over beads and each coat feathered out onto panel faces.

c. **Metal Trim No. ()** shall be securely installed where indicated. Finish with joint compound, as required.

d. **Fasteners** shall be as shown on drawings or as herein specified. Fasteners shall be driven at least $\frac{3}{8}$ " from ends or edges of wallboard to provide uniform dimple not over $\frac{1}{32}$ " deep. Spot exposed fastener dimples on face layers with at least three coats of joint compound, feathered and sanded smooth.

e. **Control Joints** shall be provided in the face layer as indicated and where detailed. Staple in place.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: SHEETROCK (gypsum wallboard); FIRECODE, BAXBORD, TEXTONE (gypsum board); USG (wood fiber board, metal products); PERF-A-TAPE, DURABOND (joint treatment, adhesive); THERMAFIBER (insulating wool); DUR-A-BEAD, PERF-A-BEAD, PERF-A-TRIM (corner reinforcement).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
1 hr.	Wd Stud—Resil 5/8" SHEETROCK FIRECODE "C" gypsum wallbd—2x4 16" o.c.—3" THERMAFIBER ins wool blkts—RC-1 chan one side spaced 24" o.c.—wallbd att with 1" Type S screws—opp side direct att with 1 1/4" Type W screws—joints fin—perimeter caulked wt 7 width 5 1/8"	UL Des 27-1 hr (f) USG-33-FT-G&H (s)		52	134	Best value of wood stud drywall party walls	a-1401
1 hr.	Wd Stud—Resil 5/8" SHEETROCK FIRECODE gypsum wallbd—2x4 16" o.c.—RC-1 chan both sides spaced horiz 24" o.c. att with 6d nails—wallbd att with 1" Type S screws—joints fin—perimeter caulked wt 7 width 5 1/8"	T-1396-OSU (f) TL-60-52 (s)		45	127	Fully resilient 1-hr. fire rated party wall	a-1401
2 hrs.	Wd Stud—2 layers 5/8" SHEETROCK FIRECODE "C" gypsum wallbd ea side—2x4 16" o.c.—2" THERMAFIBER ins wool blkts—RC-1 chan one side spaced 24" o.c.—resil side screw att—opp side nail att—both base layers appl vert and face layers appl horiz—base layers perim caulked—joints fin wt 13 width 6 1/8"	T-4799-OSU (f)			187		a-1401
2 hrs. est	Wd Stud—2 layers 1/2" SHEETROCK FIRECODE "C" gypsum wallbd ea side—2x4 16" o.c.—3" THERMAFIBER ins wool blkts—RC-1 chan one side spaced 24" o.c.—resil side screw att—opp side nail att—both base layers appl vert and face layers appl horiz—base layers perim caulked—joints fin wt 12 width 6 1/8"	TL-67-239 (s) TL-67-212 (s)		59 49	180 171	Exceptional sound control for party walls. TL-67-212 based on same construction without wool	a-1401

wall furring application

—	RC-1 Furring Channels 24" o.c., 1/2" Insulating SHEETROCK screw attached, PERF-A-TAPE Joint Treatment	—	—	—	101	RC-1 channel reduces transfer of structural stresses to surface membrane	a-1401
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description

Superior sound transmission loss and fire resistance up to 2 hours are provided by these lightweight drywall assemblies. SHEETROCK SW Gypsum Wallboard is attached with RC-1 SHEETROCK Resilient Channels to wood studs placed 16" o.c. These channels, roll formed from galvanized steel, are designed to improve sound control at an economical cost. They are attached 24" o.c. at right angles to the partition framing with screws or nails.

SHEETROCK wallboard is fastened to the resilient channels with power-driven USG® Brand Screws Type S. These specially designed self-tapping steel screws with a rust-inhibitive coating provide superior holding power and optimum surface depression. Work is completed with a U.S.G. joint treatment and DUR-A-BEAD® or No. 900 Corner Reinforcement.

SHEETROCK for these assemblies is available in 1/2" or 5/8" thickness and in five types. SHEETROCK SW FIRECODE® wallboards generally obtain higher fire resistance ratings than regular SHEETROCK. With Insulating (foil back) SHEETROCK SW wallboard, the system is effective as a vapor barrier, offers significant insulating value and provides economical, crack-resistant furring for exterior walls.

One of the best values in wood stud party walls consists of single-layer 5/8" SHEETROCK SW FIRECODE Gypsum Wallboard, resiliently attached to one side of wood studs and directly attached to the other side, plus 3" THERMAFIBER® Insulating Wool Blankets pressed tightly into the stud cavity. This lightweight partition is widely used for its high sound value, STC 52, at costs which are little more than conventional partition systems. It also offers 1-hour rated fire resistance; has been repeatedly chosen for use between units in garden apartments and other multi-family buildings.

Where exceptional sound control, greater fire resistance and strength are required, double layer wallboard construction is used with THERMAFIBER Blankets and RC-1 channels applied one side of wood studs (see table above). See separate U.S.G. System Folders for ceiling application and direct attachment SHEETROCK/Wood Framing.

function and utility

Fire Resistance—Up to 2 hours (see table above) for double layer assemblies. The 1-hour ratings for single layer constructions meet requirements established by ASTM E-119.

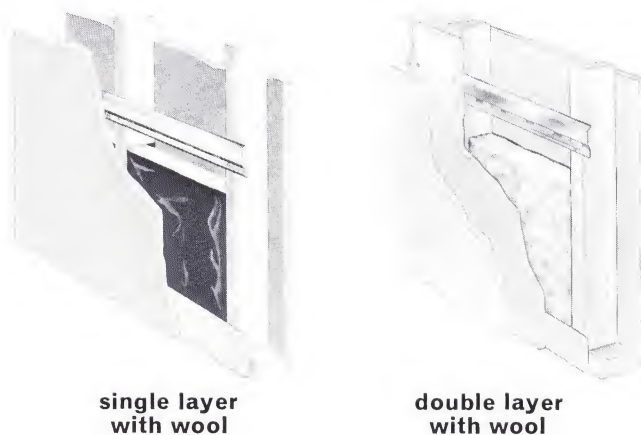
Sound Control—Up to 59 STC available; suitable for party walls; sound transmission loss much superior to direct application of wallboard.

Versatility—These assemblies are suitable for use in remodeling or in all types of new construction using wood framing.

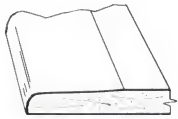
Economy—Only three basic components are required: the resilient channel, drywall screws, and gypsum wallboard. They erect quickly to provide economical construction.

limitations

1. USG Brand Screws Type S must be used for attachment of wallboard to RC-1 Resilient Channels.
2. Not recommended for use where normally exposed to excessive moisture or continued wetting.

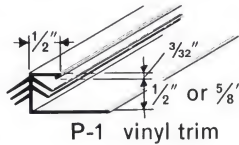
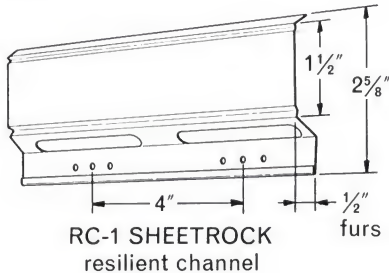
single layer
with wooldouble layer
with wool

components



SHEETROCK SW
gypsum wallboard

see "gypsum wallboard & joint treatment" product catalogs for full description on accessories



1" USG brand screw—type S—bugle head



1 1/8" USG brand screw—type S—bugle head



1 1/4" USG brand screw—type W—bugle head

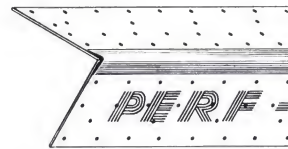
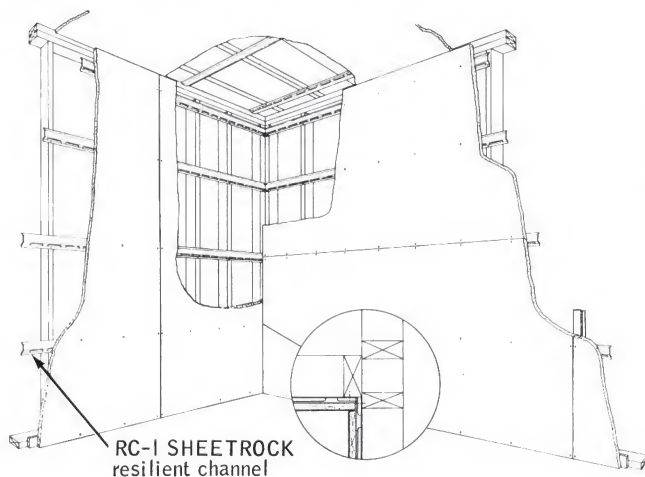


1 5/8" USG brand screw—type S—trim head



2" 6d common nail

resilient wallboard application



no. 100 PERF-A-BEAD* reinforcement



DUR-A-BEAD* corner reinforcement



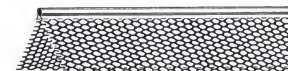
no. 200-A USG metal trim



no. 200-B USG metal trim



no. 200-C USG metal trim

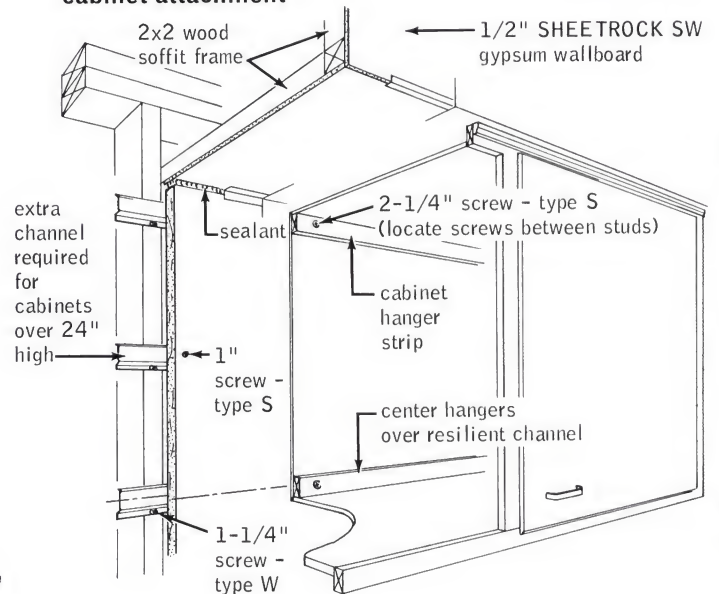


no. 900 USG corner reinforcement



USG metal trim

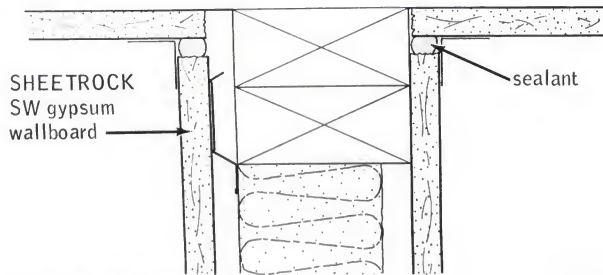
cabinet attachment



details/specifications

scale: 3"=1'-0"

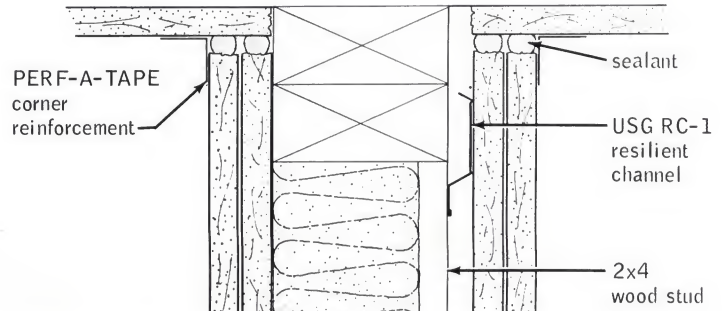
ceiling attachments



floor attachments

USG RC-1
resilient
channelTHERMAFIBER
insulating
wool blanket1/2"x3"
gypsum
wallboard
filler strip

sealant

1/2" SHEETROCK SW
FIRECODE "C"
gypsum wallboard

1/2"

1/2"x3"
gypsum
wallboard
filler strip

sealant

specifications—notes to architect

1. Wallboard surfaces should be isolated with metal control joints or other means where: (a) partition abuts a structural element (except floor) or dissimilar wall; (b) construction changes within the plane of the partition; (c) partition run exceeds 30'. Ceiling-height door frames may be used as control joints, as may less-than-ceiling-height door frames if control joints extend to ceiling from both corners.

2. Penetrations of the wallboard diaphragm, such as door and borrowed-light openings, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

3. Where these partitions are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs, such as at electrical boxes, and at the perimeter of the partitions. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. Door and borrowed-light openings are not recommended in sound control partitions.

4. Wood Framing Requirements—Wood framing meeting the minimum requirements of FHA, ALSC and local building codes is necessary for proper performance.

5. Ceramic Tile—SHEETROCK W/R Gypsum Wallboard is recommended as a base for adhesive application of ceramic, metal and plastic tile.

6. With fire rated construction, all vertical butt joints should be floated between studs and backed between resilient channels with RC-1 channels.

7. Fixture Attachment—Lightweight fixtures and trim should be installed using plastic plugs or other expandable anchors for screw attachment. Medium and heavy weight fixtures are not recommended on resilient surfaces but if required they should be supported from the primary framing.

8. Temperature differentials in an exterior wall may cause interior condensation which when combined with airborne dust could result in photographing or shadowing over fasteners and resilient channels. Because soiling and temperature differences are variables over which it has no control, United States Gypsum cannot be held responsible for such surface blemishes.

9. See U.S.G. Product Folders in this series: Joint Treatment Folder for Joint System Specifications; Gypsum Wallboard Folder for Wallboard System Components; Paint Products Folder for Paint Specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

sound transmission loss—db

test no.	method	band center frequency—Hz																				STC	
		125	160	175	200	250	315	350	400	500	630	700	800	1000	1250	1400	1600	2000	2500	2800	3150		4000
TL-67-239	Lab	35	41	—	47	53	56	—	57	59	60	—	61	63	64	—	65	65	64	—	59	61	59
USG-33-FT-G&H	Lab	32	—	36	—	42	—	46	—	52	—	54	—	58	—	55	—	53	—	53	—	54	52
TL-67-212	Lab	26	30	—	33	39	42	—	47	49	52	—	55	57	60	—	61	61	58	—	53	56	49
TL-60-52	Lab	29.5	—	32.5	—	39.5	—	43.5	—	46	—	48	—	50	—	51	—	49	—	44	—	49	45

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

In cold weather and during wallboard application and joint finishing, temperatures within the building shall be maintained within the range of 55° to 70°F. Adequate ventilation shall be provided to carry off excess moisture.

Part 2: products**2.1 materials**

- a. Gypsum Board—48" wide—($\frac{1}{2}$ ") ($\frac{5}{8}$ ") thick SHEETROCK SW (Regular) (Insulating—foil back) (FIRECODE) (FIRECODE "C") (W/R) Wallboard—lengths as required.
- b. Joint Treatment—(select a U.S.G. Joint System).
- c. Fasteners—Screws (specify from Pg. 2).
- d. USG Trim (specify type from Pg. 2).
- e. Resilient Channels—RC-1 SHEETROCK Resilient Channel.
- f. USG Corner Bead—DUR-A-BEAD, No. 900, PERF-A-BEAD, ECONO* Corner Reinforcement (specify type from Pg. 2).
- g. Control Joints—USG Control Joint No. 093.
- h. Caulking—USG Acoustical Sealant.

Part 3: execution**3.1 resilient channel erection**

Position RC-1 Resilient Channels at right angles to wood framing, spaced 24" o.c.; attach with $1\frac{1}{4}$ " type W screws driven through holes in channel mounting flange.

On walls, attach $\frac{1}{2}$ "x3" wide continuous filler strips to both sides of bottom plate. Install channels with mounting flange down, top channel max. 6" down from ceiling, bottom channel 24" up from floor. Extend channels into all corners and attach to corner framing.

Splice channels by nesting directly over framing member; screw-attach through both flanges. Reinforce with screws located at both ends of splice.

Where cabinets are to be installed, attach RC-1 channels to studs at center of top and bottom cabinet hanger brackets. When distance between hangers exceeds 24" o.c., install additional channel at midpoint between hangers.

3.2 panel erection

Apply gypsum board of maximum practical length with long dimension parallel to resilient channel and fastened with 1" type S screws spaced 12" o.c. along channels. Center horizontal abutting edges over screw flange of channel. Where channel resiliency makes screw placement difficult, the next longer screw may be used. For direct attachment, fasten panels to wood studs with 6d nails 8" o.c.

For two-layer application of gypsum board, apply base layer vertically and attach to resilient channels with 1" type S screws spaced 24" o.c. and to wood studs with $1\frac{1}{4}$ " type W screws 12" o.c. Apply face layer with long dimension at right angles to long edges of base layer and fasten with $1\frac{5}{16}$ " type S screws spaced 16" o.c.

3.3 wall furring application

Position RC-1 SHEETROCK Resilient Channels horizontally and attach with 2" cut nails in mortar joints of brick, clay tile or concrete block or in field of lightweight aggregate block; $\frac{5}{8}$ " concrete stub nails or power-driven fasteners in monolithic concrete. Space fasteners 24" o.c. Position channels within 4" of floor and ceiling line and not more than 24" o.c.

Apply $\frac{1}{2}$ " Insulating SHEETROCK Wallboard of maximum practical length with long dimension parallel to resilient channels with 1" type S screws spaced 12" o.c. Center horizontal abutting edges over screw flange of channel. Where there is a possibility of water penetration through the walls, install an asphalt felt strip between resilient channels and wall.

3.4 accessory application

a. **Joint System**—Finish all face board joints and internal angles with a U.S.G. Joint System installed according to manufacturer's directions. Spot exposed fasteners on face layers and finish corner bead, control joints and trim as required, with at least three coats of joint compound, feathered out onto panel faces and sanded smooth.

b. **Corner Bead**—Reinforce all vertical and horizontal exterior corners with corner bead fastened with staples 9" o.c. on both flanges along entire length of bead.

c. **Metal Trim**—Where partition terminates against masonry or other dissimilar material, apply metal trim over wallboard edge and fasten with screws or staples spaced 12" o.c.

d. **P-1 Vinyl Trim**—Slip trim over wallboard with long flange behind board. Install board with trim firmly abutting surface.

e. **Screws**—Power-drive at least $\frac{3}{8}$ " from edges or ends of wallboard to provide uniform dimple $\frac{1}{32}$ " deep.

f. **Control Joints**—Break wallboard and resilient channels behind joint and back by double studs. Attach control joint to face layer with staples spaced 6" o.c. on both flanges along entire length of joint.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: SHEETROCK (gypsum wallboard, metal channel); FIRECODE (gypsum wallboard); USG (metal products); THERMAFIBER (insulating wool); PERF-A-TAPE, DURABOND (joint treatment); DUR-A-BEAD, PERF-A-BEAD, ECONO (corner reinforcement).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
45 min.	½" SHEETROCK FIRECODE gypsum wallbd ceiling—1" nom wd sub & fin flr—2x10 wd joist 16" o.c.—wallbd att with 5d cem ctd nails 6" o.c.—joints fin clg wt 3	UL Des 1-45 min (f) NBS-77 P-716 (s)			clg matls 23	Basic 45-min. assembly—sound attenuation test	b-1451
1 hr.	Resil ½" SHEETROCK FIRECODE "C" gypsum wallbd ceiling—1" nom plywd & MASTICAL underlayment compd or wd sub & fin flr—2x10 wd joist 16" o.c.—RC-1 chan spaced 24" o.c.—wallbd att with 1" Type S screws—joints fin clg wt 3	UL Des 41-1 hr (f)	N/A		clg matls 33		b-1451
1 hr. est	Resil ½" SHEETROCK gypsum wallbd ceiling—¾" MASTICAL underlayment compd over ¾" plywd subflr—2x10 wd joist 16" o.c.—3" THERMAFIBER ins wool blkts betw joists—RC-1 chan screw att to joists—wallbd att with 1" Type S screws—joints fin clg wt 3	BBN-670601 & 670602 (s) BBN-670705 & 670706 (s)	(IIC) 54	56	clg matls 52	BBN-670705 & 670706 based on same const without wool	b-1451
1 hr. est	Resil SHEETROCK gypsum wallbd ceiling—1¼" nom wd sub & fin flr—2x10 wd joist 16" o.c.—RC-1 chan screw att to joist—wallbd att with 1" Type S screws—joints fin clg wt 3	CK-6512-6 (s) (½" FIRECODE "C") CK-6412-10 (s) (¾" reg SHEETROCK)	(IIC) 39	47	clg matls 33		b-1451
1 hr. est	Resil SHEETROCK gypsum wallbd ceiling—1¼" nom wd sub & fin flr—44-oz carpet & 40-oz pad atop flr—2x10 wd joist 16" o.c.—RC-1 chan screw att to joists—wallbd att with 1" Type S screws—joints fin clg wt 3	CK-6512-7 (s) (½" FIRECODE "C") CK-6412-9 (s) (¾" reg SHEETROCK)	(IIC) 67	47	clg matls 33		b-1451
1 hr. est	Resil SHEETROCK gypsum wallbd ceiling—1¼" nom wd sub & fin flr—2x10 wd joist 16" o.c.—3" THERMAFIBER ins wool blkts betw joists—RC-1 chan screw att to joists—wallbd att with 1" Type S screws—joints fin clg wt 3	CK-6512-9 (s) (½" FIRECODE "C") CK-6412-3 (s) (¾" reg SHEETROCK)	(IIC) 46	51	clg matls 45		b-1451
1 hr. est	Resil SHEETROCK gypsum wallbd ceiling—1¼" nom wd sub & fin flr—44-oz carpet & 40-oz pad atop flr—2x10 wd joist 16" o.c.—3" THERMAFIBER ins wool blkts betw joists—RC-1 chan screw att to joists—wallbd att with 1" Type S screws—joints fin clg wt 3	CK-6512-8 (s) (½" FIRECODE "C") CK-6412-4 (s) (¾" reg SHEETROCK)	(IIC) 71	52	clg matls 45		b-1451
1 hr.	½" SHEETROCK FIRECODE "C" gypsum wallbd ceiling—1" nom plywd & MASTICAL underlayment compd or wd sub & fin flr—2x10 wd joist 16" o.c.—wallbd att with 5d cem ctd nails 6" o.c.—joints fin clg wt 3	UL Des 42-1 hr (f) BBN-671007 & 671008 (s)	(IIC) 35	48	clg matls 23	BBN-671007 & 671008 based on 1¼" thick MASTICAL underlayment	b-1451
1 hr.	¾" SHEETROCK FIRECODE gypsum wallbd ceiling—Amer Plywood Assn 2-4-1 flr 4x10 wd joist 48" o.c.—USG met fur chan spaced 24" o.c.—wallbd att with 1" Type S screws—joints fin clg wt 3	UL Des 28-1 hr (f)	N/A		clg matls 36	Only 1-hr. residential drywall system based on 48" joist spacing	b-1451
1 hr.	¾" SHEETROCK FIRECODE gypsum wallbd ceiling—1" nom wd sub & fin flr—2x10 wd joist 16" o.c.—wallbd att with 6d nails 6" o.c.—joints fin clg wt 3	UL Des 1-1 hr (f) CK-6412-7 (s) CK-6412-8 (s)	(IIC) 32	38	clg matls 26	In CK-6412-8 test, 44-oz. carpet & 40-oz. pad added atop flooring	b-1451
1 hr. est	¾" SHEETROCK gypsum wallbd ceiling—1" nom wd sub & fin flr—2x10 wd joist 16" o.c.—3" THERMAFIBER ins wool blkts betw joists—wallbd att with 6d nails 6" o.c.—joints fin clg wt 3	CK-6412-6 (s) CK-6412-5 (s)	(IIC) 32	41	clg matls 35	In CK-6412-5 test, 44-oz. carpet & 40-oz. pad added atop flooring	b-1451
1½ hrs.	Resil 2 layers ½" SHEETROCK FIRECODE "C" gypsum wallbd ceiling—1" nom wd sub & fin flr—2x10 wd joist 16" o.c.—RC-1 chan spaced 24" o.c. screw att over base layer wallbd—face layer screw att to chan 12" o.c.—joints fin clg wt 5	UL Des 22-1½ hr (f)	49 est		clg matls 46		b-1451
2 hrs.	Resil 2 layers ¾" SHEETROCK FIRECODE "C" gypsum wallbd ceiling—1" nom wd sub & fin flr—2x10 wd joist 16" o.c.—RC-1 chan spaced 24" o.c. screw att over base layer wallbd—face layer screw att to chan 12" o.c.—joints fin clg wt 5	UL Des 272-2 hr (f)		50 est	clg matls 90		b-1451

description

These basic gypsum drywall systems offer economical, quickly completed, fire-resistant floor/ceiling assemblies in wood frame construction—also usable for radiant heat ceilings and exterior soffits. Gypsum boards are either directly attached to wood ceiling joists or wood truss rafters or resiliently attached using resilient metal channels. Variations of the systems meeting other requirements are outlined below.

Single Layer—SHEETROCK® SW Gypsum Wallboard, applied horizontally (across the supports), is nailed or screw-attached directly to wood framing. Fastening of wallboard is by four alternate methods:

1. **Standard single nailing**—spacing 6" to 7" o.c. for ceilings.
2. **Double nailing**—for minimizing defects due to loosely

nailed wallboard. First nails spaced 12" o.c., followed by second nails within 2" of first.

3. Screw application—best known insurance against fastener pops caused by loosely attached board. 1¼" USG® Brand Screw Type W is used.

4. Adhesive nail-on—continuous bead of DURABOND® 200 or 300 Adhesive applied to framing plus supplementary nailing; improves bond strength by 50% to 100%, greatly reduces face nailing needed.

Two other proven methods upgrade job quality:

Back-Blocking Joint Reinforcement—a patented system designed to minimize an inherent joint deformation ("ridging") that may occur with adverse job and weather conditions.

(continued on page 2)

description/components

description (continued from page 1)

Floating Interior Angle System—application of board to effectively reduce nail pops and angle cracking which may result from stresses at intersections of walls and ceilings.

Double Layer—systems consisting of a face layer of SHEETROCK Gypsum Wallboard job-laminated and/or nailed to a base layer of gypsum board directly attached to wood framing. Because the systems minimize the use of mechanical fasteners in the face layer, finer appearance is the result—together with greater strength and higher fire and sound resistance.

In lamination of face layer to base layer, USG or PERF-A-TAPE® Joint Compound-Taping is applied over the entire wallboard surface. Face layer is applied and held in place with supplementary Type G screws or temporary supports until adhesive dries. When a fire rating is not required, contact bonding of face layer with DURABOND Adhesive is preferred. Either DURABOND 400 (notched spreader applied) or DURABOND 600 (spray or roller applied) is used with perimeter fasteners 48" o.c.

Resilient Ceilings—SHEETROCK SW Gypsum Wallboard is attached using the RC-1 SHEETROCK Resilient Channel screw-attached 24" o.c. to the framing. These galvanized metal channels "float" the wallboard away from the joists; provide a spring action that isolates the wallboard surface. Specially designed, power driven, self-tapping USG Brand Screws Type S are used to attach the gypsum board to the channels. These systems combine highly effective sound isolation with lightweight low-cost construction.

MASTICAL Underlayment Compound—used in floor/ceiling systems to effectively resist transmission of airborne and impact sound. It is poured into place over plywood or T & G sub-base and troweled smooth to produce a durable, crack-free surface ideal for any type of floor covering. With either directly or resiliently attached wallboard, these systems also provide excellent fire resistance which makes them suited for motels and multi-story apartments.

Radiant Heated Ceilings—specially formulated components are also used extensively in electric cable radiant heated ceilings. A single layer of USG R.H. Base attached to joists, provides a base for electric radiant heat cables and following 1/4" thickness of SHEETROCK R.H. Filler. This high-density filler and thin application allows higher temperatures than with other gypsum products, provides more efficient heat

transmission and greater resistance to heat deterioration. See Details and Specifications for particulars.

Exterior Soffits—eaves, canopies and carports and other exterior soffit applications with indirect exposure to the weather are quickly and economically completed with USG Exterior Gypsum Ceiling Board fastened directly to joists (see U.S.G. Bulletin WB-1152 for detailed specification).

Gypsum wallboard for these assemblies is available in 1/2" and 5/8" thicknesses and 5 types. SHEETROCK SW Gypsum Wallboard has an eased edge specially designed to overcome joint deformation. SHEETROCK SW FIRECODE® Wallboard, with a specially formulated core, obtains higher fire-resistance ratings than regular SHEETROCK Wallboard. Insulating (foil back) SHEETROCK SW Wallboard is effective as a vapor barrier and offers significant insulating value for ceilings. Exterior Gypsum Ceiling Board offers superior sag and water resistance plus excellent paintability.

function and utility

Fire Resistance—Up to 2-hour fire rating available.

Sound Control—Up to 52 STC and 71 IIC available.

Versatility—Suitable for remodeling or for all types of new wood frame construction.

Economy—Utilizes low-cost materials. A minimum number of components and simplified installation result in fast erection.

limitations

1. Maximum frame spacing:

Double layer: 16" o.c. if fire rating is required; 24" for ceilings with 1/2" base layer applied with long dimension applied across framing.

Single layer: 1/2" and 5/8" SHEETROCK, 16" o.c. if applied with long edge parallel to framing, or 24" o.c. if applied across the framing.

Resilient channel: 24" o.c. for joists 16" o.c.; 16" o.c. for joists 24" o.c.

2. USG Brand Screws Type S must be used for attachment of single layer wallboard to RC-1 Resilient Channels.

(continued on page 6)

components



SHEETROCK SW
gypsum wallboard



SHEETROCK
R.H. base



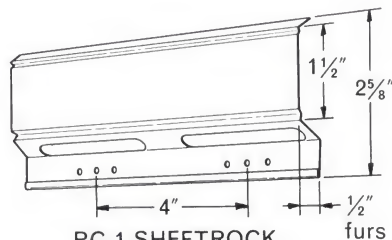
1" USG brand
screw—type S—bugle head
Also in 1 1/8", 1 1/4", & 1 3/8" lengths



1 1/4" USG brand
screw—type W—bugle head



1 1/2" galv. box, roofing, or aluminum nail



RC-1 SHEETROCK
resilient channel

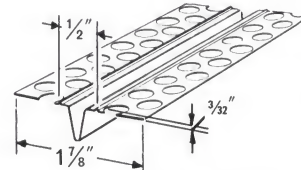
see "gypsum wallboard & joint
treatment" product catalogs for
full description on accessories



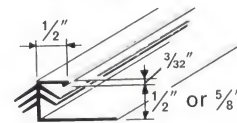
1 5/8" 5d gypsum wallboard nail cement coated



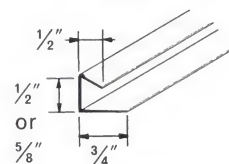
1 5/8" 6d gypsum wallboard nail cement coated



USG control joint #093



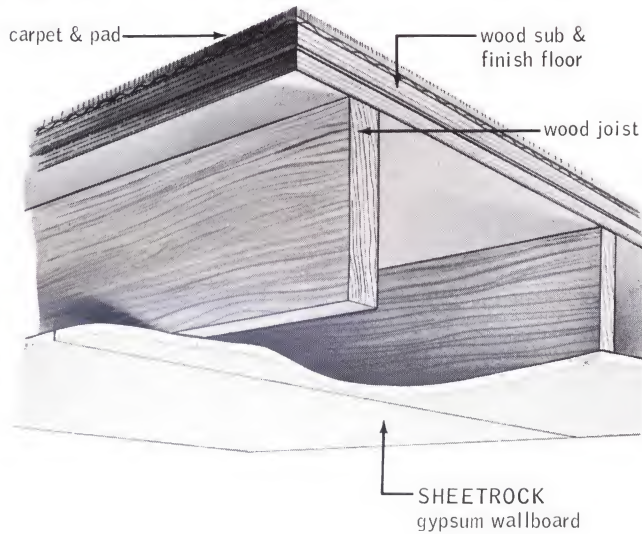
P-1 vinyl trim



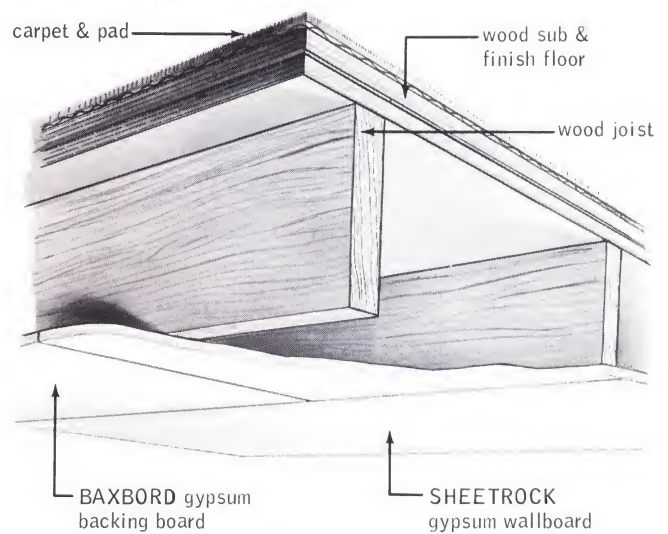
P-2 vinyl trim

details/direct attachment

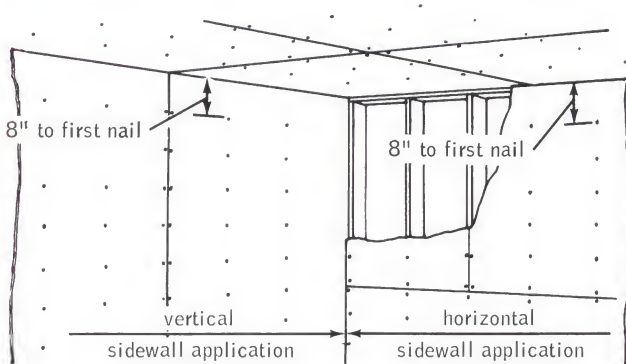
single layer wallboard



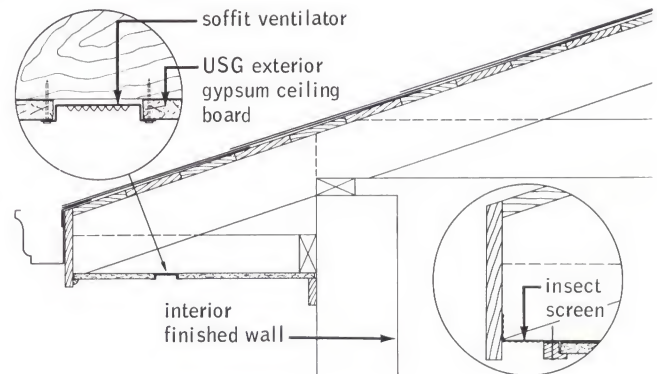
double layer wallboard



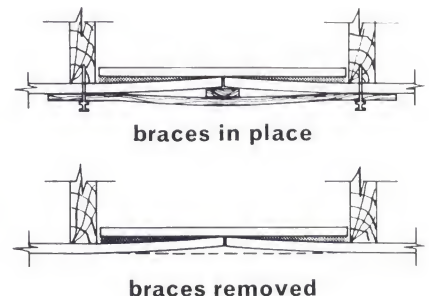
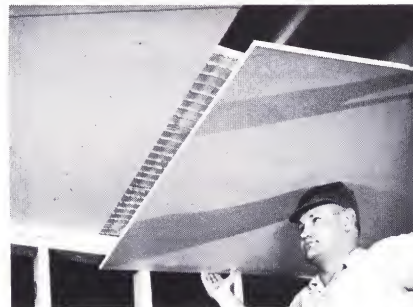
floating interior angle system



exterior soffit



back-blocking procedure



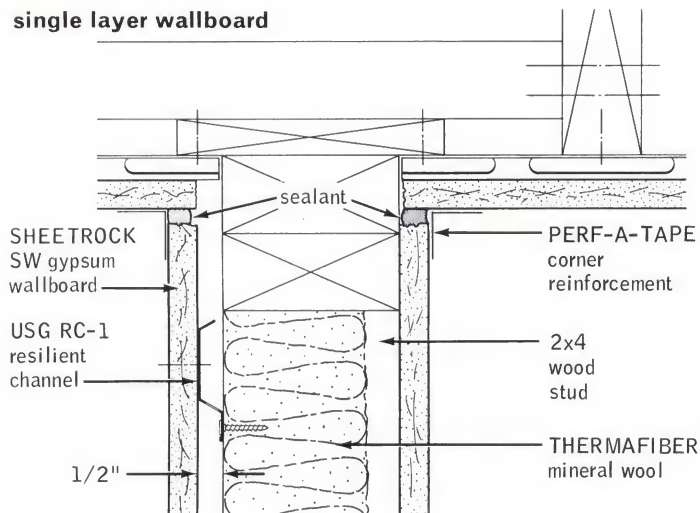
A. Wallboard is applied with long edges at right angles to joists. Backing blocks 8" wide, cut from scrap wallboard, are cemented and placed along full length of edge and ends of board. Floating of end joints makes it easier to form a good joint over a twisted stud or joist.

B. Immediately after all blocks are in place, the next board, which has been previously cut, is erected. Ends are loosely butted.

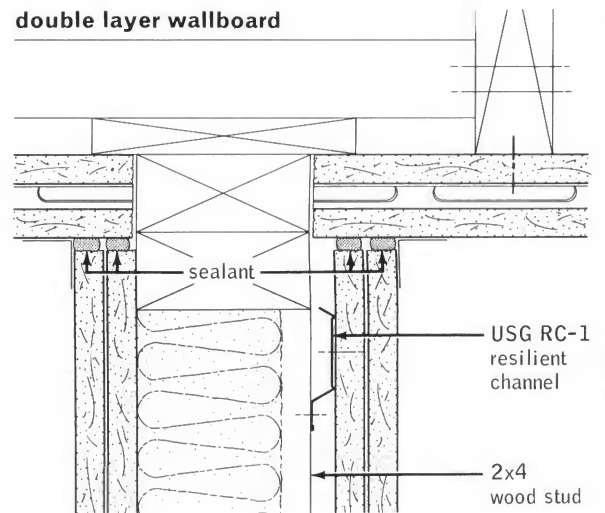
C. Cross section shows how floated end joint is tapered and back blocked. Brace is temporarily nailed over wood strip (top drawing) which depresses ends of boards. When strips are removed, tapered formation remains as shown in bottom drawing.

details/resilient attachment

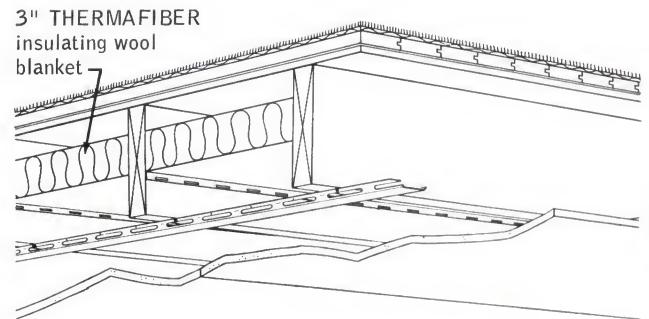
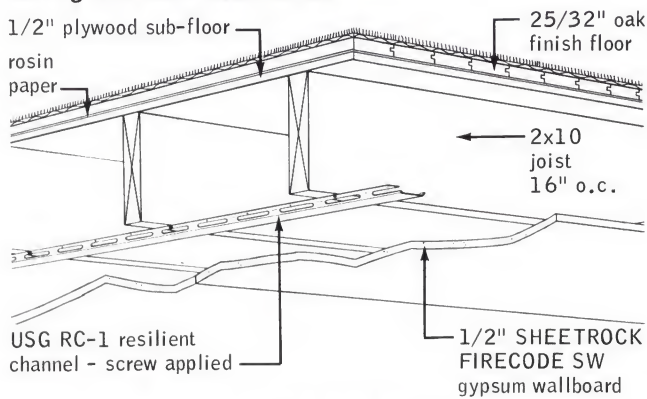
single layer wallboard



double layer wallboard



ceiling and floor assemblies



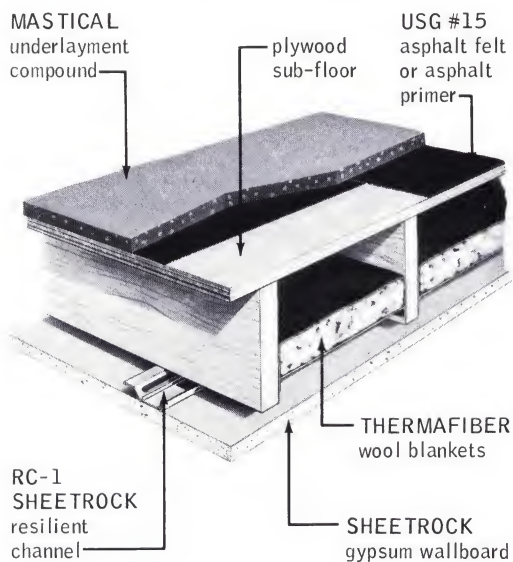
test CK-6512-7

test CK-6512-6—same but without carpet & pad

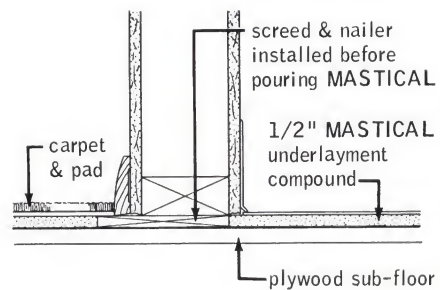
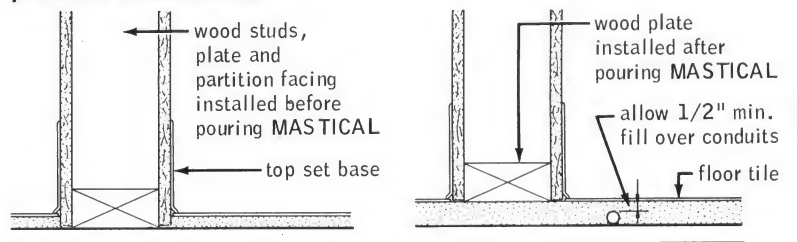
test CK-6512-8

test CK-6512-9—same but without carpet & pad

underlayment compound application

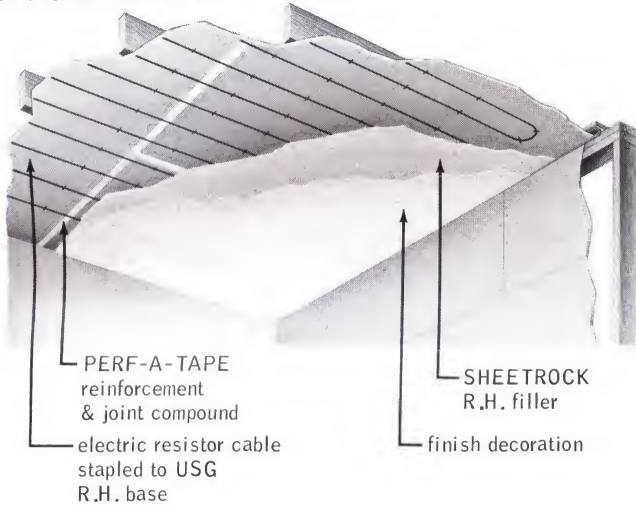


partition attachments

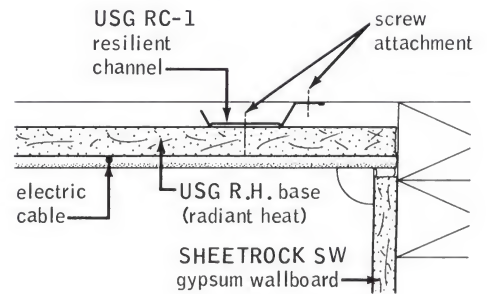


details/ceiling heating

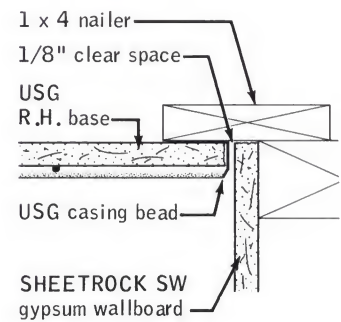
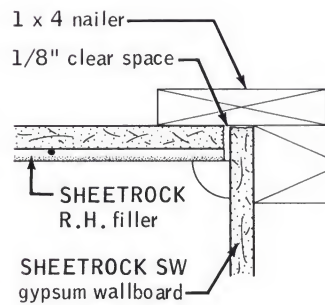
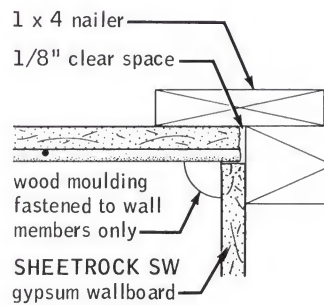
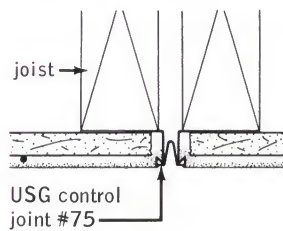
direct attachment



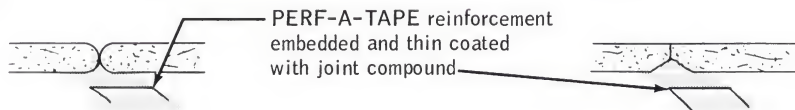
resilient attachment



structural relief and ceiling angle treatment

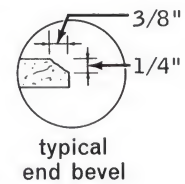


joint treatment

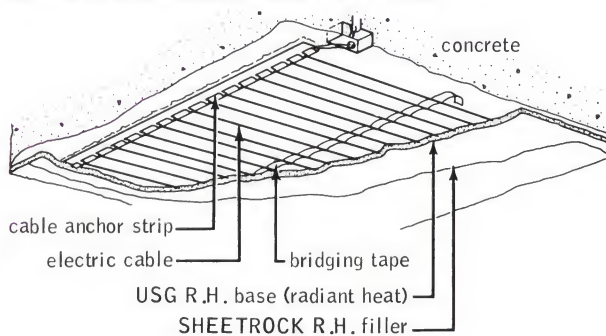


detail at edges of base

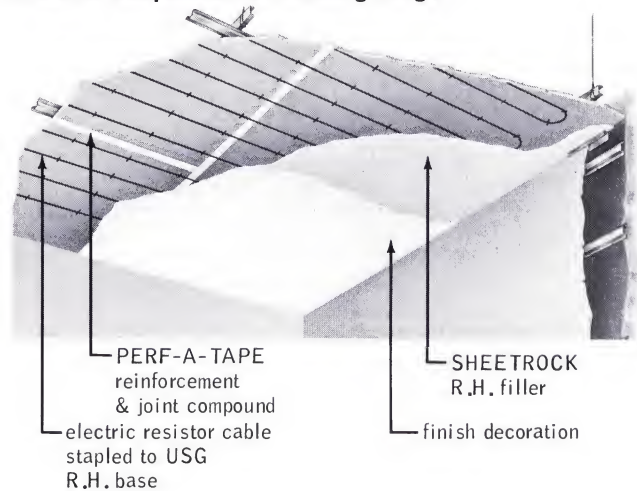
detail at ends of base



direct to monolithic concrete ceiling



direct to suspended or furred grillage



limitations (continued from page 2)

3. RC-1 Resilient Channels must be attached to the bottom face of wood floor joists with 1 1/4" USG Brand Screws Type W or 1" Type S. Nails must not be used. For fire-rated construction, use 1 1/4" Screws, Type S or W.
4. Resilient ceilings should not be installed beneath highly flexible floor joists. Install only to framing meeting "Wood Framing Requirements" shown in U.S.G. Gypsum Wallboard Product Folder.
5. Direct attachment to wood framing with fastener penetration into wood exceeding 1" is not recommended except where required to meet fire rating.
6. Not recommended for exterior soffits and ceilings which project upwards and away from the building proper.

specifications—notes to architect

1. Wallboard surfaces should be isolated with control joints or other means where: (a) a ceiling abuts a structural element, dissimilar wall or partition, or other vertical penetration; (b) construction changes within the ceiling plane; (c) ceiling dimensions exceed 50' in either direction. In addition to recommendations above, radiant heated ceilings should have control joints where a continuous expanse exceeds 25 lin. ft. or 500 sq. ft. or where more than one thermostat and cable are required in a ceiling area.
2. Penetrations of the wallboard diaphragm, such as vents, grilles, access panels and light troffers, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.
3. Where these assemblies are used for sound control, the use of USG Acoustical Sealant is recommended to seal all cut-outs, such as at electrical boxes, and at the perimeter of the assembly. Back-to-back penetrations of the diaphragm and flanking paths should be eliminated. THERMAFIBER Insulation Blankets stapled between joists will increase the sound transmission loss of the construction. Exterior wall surfaces should be resiliently mounted to minimize flanking paths between floor and ceiling construction.
4. Plenum or attic spaced closed by ceiling installation should be vented with a min. 1/2 sq. in. net free vent area per sq. ft. of horizontal surface.
5. Ridging or deformation at the panel joints may occur in gypsum board construction under adverse job or weather conditions. Back-blocking end joints will minimize joint ridging and is recommended. Where back-blocking is used, float the end joints between resilient channels and back block with an 8" wide strip of gypsum board the full length of the joint adhesively applied over abutting ends. For fire-rated construction, back butt end joints with RC-1 Channels.
6. The minimum thickness of MASTICAL Underlayment Compound over electrical conduit or cables should be 1/2".
7. Wood Framing Requirements—Wood framing meeting the minimum requirements of FHA, ALSC and local building codes is necessary for proper performance.
8. Radiant Heated Ceilings—Type and amount of insulation should be as specified by the heating contractor or the designer of the cable heating system; or, ceiling should be insulated according to minimum All-Weather Comfort Standards—R-24, 6" THERMAFIBER Insulating Wool Blankets or R-24, 7" THERMAFIBER Blowing Wool. See U.S.G. Product Folder on Insulating Wool (in this series; also in Sweet's Sec. 7.14) for additional information.

The electric radiant heating cable (not by U.S.G.) should be U.L. approved and of adequate wattage to properly heat the areas intended. The type, wattage, and spacing of cable should comply with National Electric Code. Cable operating tempera-

tures as high as 150°F. are permissible if cable does not exceed 2.75 watts per lin. ft. or a watt density of 22 per sq. ft. Cable should be attached to ceiling so it is taut and does not sag away from base. All cable connectors and non-heating leads should be embedded into, but not through, the base so they do not project below heating cables.

The electric cable should not be energized until filler is thoroughly dry. If temperature is below 55°F. at the time of energizing cable, the thermostat should be advanced no more than 5° each 24 hrs. until both room and ceiling have reached 55°F.

Filler must be dry, clean and free of foreign material before painting. Heating cable must be de-energized 6 hrs. prior to painting and until paint is dry.

Where corrosion due to high humidity and/or saline content of aggregates is possible, the use of zinc alloy accessories is recommended.

SHEETROCK R.H. Filler may also be applied directly to above grade concrete ceilings, suspended or resiliently attached USG R.H. Base (see U.S.G. Bulletin J-307 for detailed information).

9. See U.S.G. Product Folders in this series: Joint Treatment Folder for Joint System Specifications; Gypsum Wallboard Folder for Wallboard System Components; Paint Products Folder for Paint Specifications.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

In cold weather and during installation of wallboard, joint finishing and underlayment compound, temperatures within the building shall be maintained within the range of 55° to 70°F. Adequate ventilation shall be provided to carry off excess moisture.

Part 2: products

2.1 materials

- a. Faceboards—48" wide—(1/2") (5/8") thick (Regular) (Insulating) SHEETROCK SW Wallboard; (1/2") (5/8") thick SHEETROCK SW FIRECODE ("C") Wallboard; 1/2" thick USG Exterior Gypsum Ceiling Board—lengths as required.
- b. Backing Board—48" wide (1/2") (5/8") thick (Regular) (Insulating) SHEETROCK SW Wallboard; (1/2") (5/8") thick BAXBORD Gypsum Backing Board; (1/2") (5/8") thick BAXBORD FIRECODE; (1/2") (5/8") thick USG R.H. Base—lengths as required.
- c. Joint Treatment—(select a U.S.G. Joint System).
- d. Adhesive
 - (for Back-Blocking and Fire-Rated Double Layer Systems)—USG or PERF-A-TAPE Joint Compound-Taping.
 - (for Adhesive Nail-On Board Application)—DURABOND 200 or 300 Adhesive.
 - (for Non-Rated Double Layer Systems)—DURABOND 400 or 600 Adhesive.

- e. Fasteners—(specify from page 2; obtain nails locally).
- f. USG Control Joint No. (093) (75).
- g. USG Vinyl Trim (P-1) (P-2).
- h. Resilient Channels—RC-1 SHEETROCK Resilient Channel.
- i. THERMAFIBER Insulating Wool Blankets (thickness).
- j. MASTICAL Underlayment Compound.
- k. Caulking—USG Acoustical Sealant.

Part 3: execution

3.1 single layer systems

3.1.1 wallboard erection—direct attachment

Apply gypsum wallboard on ceilings first, (horizontally—right angle to framing) (vertically—parallel to framing). Position all ends over framing in horizontal application; all edges over framing members in vertical application. Use maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together. Stagger end joints in successive rows. When necessary, cut ends, edges, cutouts within field of wallboard in a workmanlike manner.

Attach wallboard to framing supports by:

- a. **Standard single nailing method**—Attach wallboard with specified nails spaced not to exceed 7" o.c.
- b. **Adhesive — nail-on method**—Attach wallboard with DURABOND (200) (300) Adhesive applied in a continuous $\frac{3}{8}$ " bead at center of attachment to face of framing members. Where two pieces of wallboard meet on a framing member, apply a serpentine bead with an 8" repeat pattern permitting adhesive contact to both panels. Do not apply adhesive to members such as bridging, diagonal bracing, etc., into which no supplement fasteners will be driven. Immediately following wallboard erection, apply fasteners per manufacturer's directions.
- c. **Double-nailing method**—Attach wallboard with nails herein specified. Apply first nails spaced not to exceed 12" o.c. with second nails in close proximity (2").
- d. **Power-driven USG Brand Screws**—Attach wallboard with $1\frac{1}{4}$ " USG Brand Screws Type W—spaced not to exceed 12" o.c. Drive fasteners in field of panel first, working toward ends and edges. Hold panel in firm contact with framing while driving fasteners. Space perimeter fasteners at least $\frac{3}{8}$ " from ends and edges. Drive nails home with heads slightly below surface of wallboard to provide a uniform dimple. Do not use a nail set; avoid breaking face paper.

3.1.2 back-blocking system

Notes to architect:

Back-blocking is used in single layer gypsum wallboard construction only. Maximum spacing of supports, 24" o.c.

Select Sections a or b, depending upon job requirements. (Floating and tapering end joints requires back-blocking. However, end joints may be back blocked without tapering.)

- a. Float, back block and taper all ceiling end joints except at perimeter of room.
- b. Back block all ceiling edge joints except at perimeter of room.
- c. Apply SHEETROCK SW Gypsum Wallboard with long edges at right angles to framing and with end joints midway between supports. Wood backing behind joints between framing supports is not required. Use $\frac{3}{8}$ " or $\frac{1}{2}$ " thick backing blocks for $\frac{1}{2}$ " ceiling finish; $\frac{1}{2}$ " or $\frac{3}{8}$ " thick blocks for $\frac{3}{8}$ " ceiling finish. Apply adhesive to face side if foil-backed wallboard is used.

3.1.3 floating interior angle system

(For Single Layer Erection and Double Layer—Base Layer Erection.) Apply SHEETROCK Wallboard to ceilings first. Follow standard framing practices for corner fastening. Fit wallboard snugly at all angles.

- a. **Horizontal application**—Use conventional single nail or screw application where end of board abuts a wall intersection; apply first nail or screw nom. 7" from wall. Use conventional fastening in remainder of ceiling area.
- b. **Vertical application**—Use conventional single nail or screw application where long edges of board abut a wall intersection; apply first nail or screw nom. 7" from wall. Use conventional fastening in remainder of ceiling area.
- c. **Double nailing**—Follow above spacing on first nail from intersection; use double nailing in remainder of ceiling area.

3.2 double layer system

3.2.1 base layer erection—direct attachment

Apply gypsum wallboard base layer on ceilings first, (horizontally—right angles to framing) (vertically—parallel to framing). Position end joints to offset face layer joints by at least 10"; joints may occur on or between framing members. Attach wallboard to framing supports by:

- a. **Nail attachment**—Attach wallboard with specified nails spaced not to exceed 7" o.c. and driven so heads are flush with surface.
 - b. **Screw attachment**—Attach wallboard with power-driven $1\frac{1}{4}$ " type W screws spaced not to exceed 12" o.c.
- Drive fasteners in field of panel first, working toward ends and edges. Hold panel in firm contact with framing while driving fasteners. Space perimeter fasteners at least $\frac{3}{8}$ " from ends and edges.

3.2.2 face layer erection—direct attachment

Use gypsum wallboard in maximum practical lengths to minimize end joints. Fit ends and edges closely, but not forced together. Stagger joints at least 10" from parallel joints in base layer. When necessary, cut ends, edges and cutouts within field of wallboard in a workmanlike manner.

After panels are cut to size, mix and apply adhesive according to manufacturer's directions and laminate face boards to base layer board in the following manner:

For fire-rated construction, apply USG or PERF-A-TAPE Joint Compound-Taping to entire back surface of face boards and to extreme edges of panels. Apply adhesive in beads approximately $\frac{3}{8}$ " wide at base and $\frac{1}{2}$ " high and spaced $4\frac{1}{2}$ " o.c. Laminate face boards to base layer using moderate pressure and temporary support or supplemental fastening as follows:

- a. **Temporary nailing**—Use nails with at least $\frac{3}{4}$ " penetration into framing. Space nails 16" to 24" o.c. When proper bond is developed, remove nails and dimple holes for joint treatment.
- b. **Temporary supports**—Brace or shore face layer every 16" to 24". When proper bond is developed, remove supports.
- c. **USG Brand Screws**—Permanently attach face layer with $1\frac{1}{2}$ " type G screws. Space screws along edges 36" o.c. maximum, within 2" of joint and 12" of both ends. In field of board, space screws along centerline, 18" o.c. maximum and within 24" of both ends.

For non-rated construction, laminate face boards to base layer as follows:

- a. **DURABOND 400 Adhesive**—Apply adhesive in strips using notched spreader having $\frac{1}{4}$ "x $\frac{1}{4}$ " minimum notches spaced 2" o.c. maximum. Apply strips to back of face panel in center and along both edges of board. Position panel and fasten with

nails or screws spaced 16" o.c. along edges and ends. Install one permanent field fastener per framing member at mid-width of board. Impact entire face panel 16" o.c., including edges and ends.

b. DURABOND 600 Adhesive—Apply adhesive to both contact surfaces; let adhesive air dry until color turns from lighter to darker blue; erect panels as soon as possible after drying. Impact entire face panel 16" o.c., including edges and ends and fasten with nails or screws at each corner of sheet and along edges spaced 48" o.c. max.

3.3 resilient attachment systems

3.3.1 resilient channel erection

Position resilient channels at right angles to wood framing, space (16") (24") o.c. and attach to supports with 1 1/4" type W, 1 1/4" type S or 1" type S screws driven through holes in channel mounting flange. For double layer system, attach channel through base layer to framing with 1 7/8" type S screws. Position first and last channels max. 6" from wall-ceiling angle. Cantilever channel ends no more than 6". When required, splice channels by nesting directly over framing member; screw-attach through both flanges. Reinforce with screws located at both ends of splice.

3.3.2 wallboard erection

a. Base layer—Apply wallboard with long edges across joists and end joints staggered. Fasten board to framing with 6d cement coated nails spaced 1", 6" and 21" from each edge in field of panel and with additional nails 15" from edge at end joints.

b. Face layer—Apply wallboard of maximum practical length with long dimension at right angles to resilient channels and end joints staggered. End joints may occur over resilient channel or midway between channels with joint floated and back blocked. Fit ends and edges closely, but not forced together. Fasten board to channels with 1" or 1 1/8" type S screws spaced 12" o.c. in field of board and along abutting ends. Cut panels neatly and properly support board around cutouts and openings.

3.3.3 floor underlayment application

a. Surface preparation—Cover subfloor with one layer No. 15 asphalt-saturated felt applied with 3" edge laps. Staple-attach in firm contact with subfloor and without bulges and wrinkles. For layments less than 1" thick, install wire mesh over felt and fasten with staples spaced 6" o.c.

b. MASTICAL installation—Mix underlayment according to manufacturer's directions; spread and screed to specified thickness; finish to a smooth, true, level surface. After set occurs, provide ventilation for rapid drying. Protect completed underlayment from freezing until dry.

3.4 radiant heated ceilings

a. USG R.H. Base—Apply base prior to wall treatment. Position base with long dimension across supports, end joints over framing and staggered in adjacent rows. Bevel butt ends

of base on 45° angle to form a "V" joint. Cut and fit base neatly at electrical outlets. Attach base to framing with screws spaced 12" o.c. Use 1 1/4" type W screws for wood framing, 1" type S screws for resilient channels and metal furring channels. Drive fasteners in field of panel first, working toward ends and edges. Hold panel in firm contact with framing while driving fasteners. Space perimeter fasteners at least 3/8" from ends and edges.

b. Reinforcing tape—Apply reinforcing tape over full length of all end and edge joints but do not overlap at intersections. Center tape over joint and seat in a thin uniform layer, approximately 1/32" thick, of joint compound. After embedding, skim over tape with a thin even coat of joint compound.

c. Filler—Mix filler according to manufacturer's directions. For hand application, apply filler to depth of cables, then double back with a 1/8" coat for 1/4" to 3/8" total thickness. For machine application, spray-apply a sufficiently heavy coat to cover 1/4" thickness and level with a wipe-down blade to a smooth surface.

3.5 exterior ceilings and soffits

Apply USG Exterior Gypsum Ceiling Board (horizontally) (vertically) with end joints over supports and with 1/16" to 1/8" space between butted ends of boards. Use maximum practical lengths to minimize end joints. Fasten boards to supports with screws spaced 12" o.c. or nails spaced 8" o.c. Insert panel ends into H-moldings or cover all joints with wood battens securely fastened to framing.

3.6 accessory application

a. Joint System—Finish all face board joints and internal angles with a U.S.G. Joint System installed according to manufacturer's directions. Spot exposed fasteners on face layers and finish corner bead, control joints and trim as required, with at least three coats of joint compound, feathered out onto panel faces and sanded smooth.

b. Metal Trim—Where ceiling terminates against masonry or other dissimilar material, apply metal trim over wallboard edge and fasten with screws or staples spaced 12" o.c.

c. P-1 Vinyl Trim—Slip trim over wallboard with long flange behind board. Install board with trim firmly abutting surface.

d. P-2 Vinyl Trim—Provide 1/8" to 3/8" relief at ceiling perimeter. Remove protective paper from adhesive on web of trim and insert trim into relief, adhesive against wall surface. Press upward until long flange seats against ceiling.

e. Screws—Power-drive at least 3/8" from edges or ends of wallboard to provide uniform dimple 1/32" deep.

f. Control Joints—Break wallboard behind joint and back by double supports 8" wide wallboard strip or resilient channel for fire-rated construction. Attach control joint to face layer with staples spaced 6" o.c. on both flanges along entire length of joint.

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: SHEETROCK (gypsum wallboard, metal channel); FIRECODE (gypsum wallboard); USG (metal products, adhesive); THERMAFIBER (insulating wool); PERF-A-TAPE (joint treatment); MASTICAL (underlayment compound); DURABOND (joint treatment, adhesive).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
4 hrs.	ROCKLATH PI Base & Plaster— $\frac{3}{4}$ " cr chan 12" o.c. & BRACE-TITE Clips— $\frac{3}{8}$ " perf gypsum lath—1" 100:2-100:3 gypsum perlite plaster—1" 20-ga hex mesh—2" conc on riblath over bar joist clg wt 7	GA-NBS-311 (f)	N/A		clg matls 120		b-1460
3 hrs.	ROCKLATH PI Base & Plaster— $\frac{3}{4}$ " cr chan 12" o.c. & BRACE-TITE Clips— $\frac{3}{8}$ " perf gypsum lath—14-ga diag wire reinf— $\frac{1}{16}$ " 100:2 $\frac{1}{2}$ gypsum perlite plaster—2 $\frac{1}{2}$ " conc over cellular sti flr clg wt 5	GA-NBS-337 (f)	N/A		clg matls 115	Good crack resistance with an opportunity to reinforce plaster at re-entry angle	b-1460
2 hrs.	ROCKLATH PI Base & Plaster— $\frac{3}{4}$ " cr chan 12" o.c. & BRACE-TITE Clips— $\frac{3}{8}$ " perf gypsum lath—14-ga diag wire reinf— $\frac{1}{16}$ " 100:2-100:3 gypsum sand plaster—2" conc over bar joist clg wt 7	GA-NBS-345 (f)	N/A		clg matls 106	Good crack resistance with an opportunity to reinforce plaster at re-entry angle	b-1460
2 hrs.	ROCKLATH PI Base & Plaster— $\frac{3}{4}$ " cr chan 16" o.c. & BRACE-TITE Clips— $\frac{3}{8}$ " perf gypsum lath—14-ga diag wire reinf— $\frac{1}{2}$ " 100:2 $\frac{1}{2}$ gypsum perlite plaster—2" conc over bar joist clg wt 5	GA-NBS-318 (f)	N/A		clg matls 106		b-1460
1 hr.	ROCKLATH PI Base & Plaster— $\frac{3}{4}$ " cr chan 16" o.c. & BRACE-TITE Clips— $\frac{3}{8}$ " perf gypsum lath— $\frac{3}{8}$ " STRUCTO-LITE plaster—2 $\frac{1}{2}$ " conc on riblath over bar joist clg wt 5	NBS 261 (f)	45 db est		clg matls 104	Good crack resistance, can reinforce plaster at re-entry angle	b-1460
N/A	ROCKLATH PI Base & Plaster— $\frac{3}{4}$ " cr chan & BRACE-TITE Clips— $\frac{3}{8}$ " gypsum lath— $\frac{1}{2}$ " 100:2-100:2 $\frac{1}{2}$ gypsum sand plaster clg wt 6	USG-6-FT-G&H (s)	45 db		clg matls 103	Attenuation test—suspension & ceiling membrane only	b-1460

description

This ceiling assembly consists of ROCKLATH Plaster Base attached to conventional furred or suspended ceiling grillage with the BRACE-TITE Clip Lathing System. In this system special wire clips are attached to the $\frac{3}{4}$ " furring channel and provide sag-resistant, spring-tension support across the full lath width.

ROCKLATH, a gypsum core faced on both sides with special paper, forms a rigid base for the economical application of gypsum plasters. For this assembly, ROCKLATH is $\frac{3}{8}$ " thick and depending upon ceiling design requirements is available in three types: Plain, for most ceiling installations; Insulating (foil back), where insulation and vapor barrier are required; Perforated, where fire ratings are needed. In Perforated ROCKLATH, $\frac{3}{4}$ " round holes are punched through the lath 4" o.c. in each direction, providing a mechanical key in addition to the natural plaster bond. Fire resistance ratings up to 4 hours can be obtained using this system (see table above).

function and utility

BRACE-TITE ceilings serve to conceal and protect structural and mechanical elements with a lightweight fireproof membrane of gypsum lath and plaster that is easily decorated and maintained. In addition the BRACE-TITE Lathing System for attaching ROCKLATH offers:

Crack Resistance—The BRACE-TITE clips while supporting the plaster base firmly against the channels, isolate the plaster membrane from minor movements of the grillage.

Fire Resistance—Incombustible components make possible established fire-resistance ratings of 1 to 4 hours.

Insulation and Vapor Barrier—Insulating (foil back) ROCKLATH provides an effective vapor barrier and increases the overall "U" factor of the roof-ceiling assembly.

Economy—With ROCKLATH Plaster Base the scratch coat of plaster and labor of application may be saved. The established fire resistance ratings can reduce annual insurance premiums.

limitations

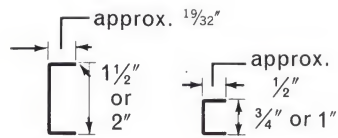
1. A non-load bearing ceiling construction.
2. BRACE-TITE Field Clips are designed for use with standard $\frac{3}{4}$ " cold rolled channels having $\frac{1}{2}$ " legs (minimum).
3. The three-coat plastering method is required over Perforated ROCKLATH, and recommended over Plain and Insulating ROCKLATH when drying conditions are unfavorable.
4. In ceiling constructions certain precautions concerning construction, isolation and ventilation are necessary for good performance (see Specifications, page 3).
5. Maximum support spacing 16" o.c.



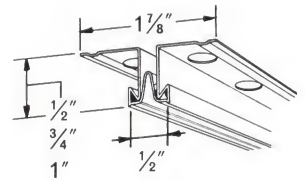
components | details



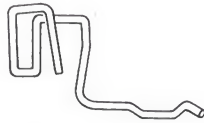
BRACE-TITE field clip BT-1



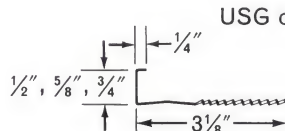
USG cold rolled channels



USG control joint



BRACE-TITE
starter
clip BT-1

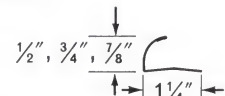


#66 square edge

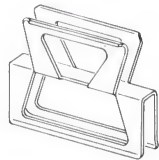
USG casing beads (expanded or short flange)



#60 semi-square edge



#4 or #138 quarter round



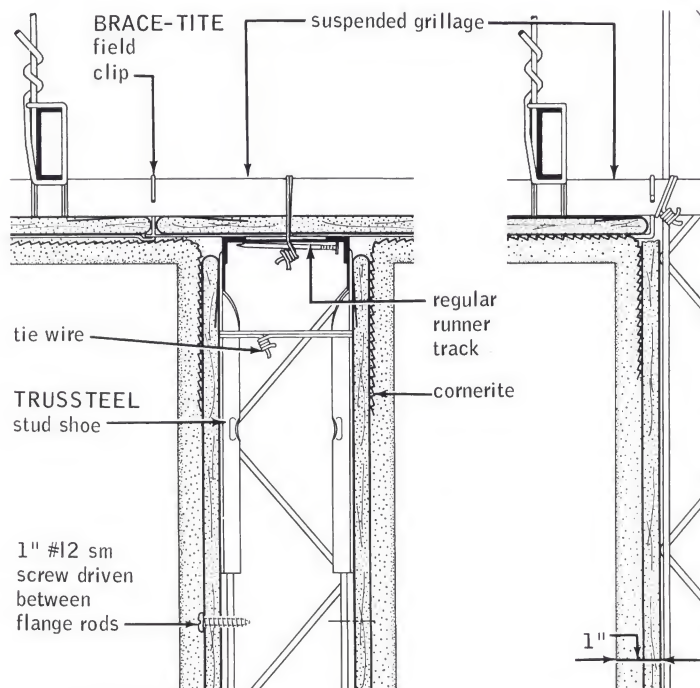
BRIDJOINT* B-1
field clip



USG
cornerite

see "plaster bases" product catalog for
full description on accessories & sizes

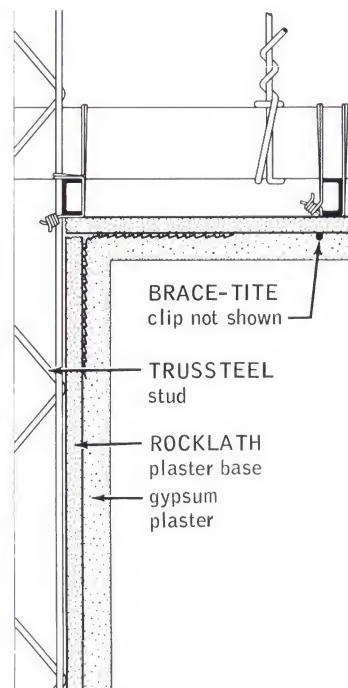
ceiling attachments



cross section transverse
to furring channel



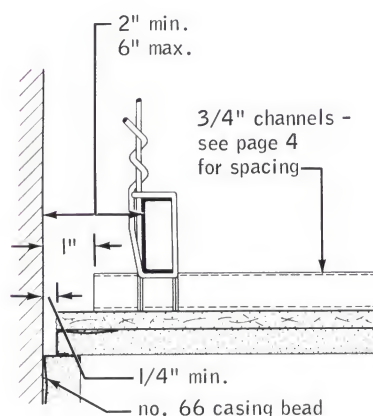
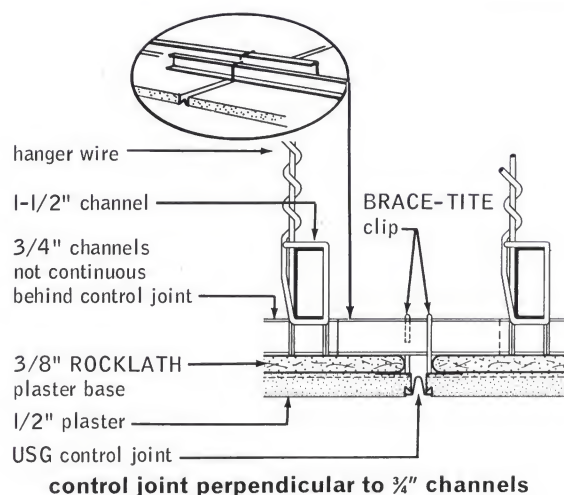
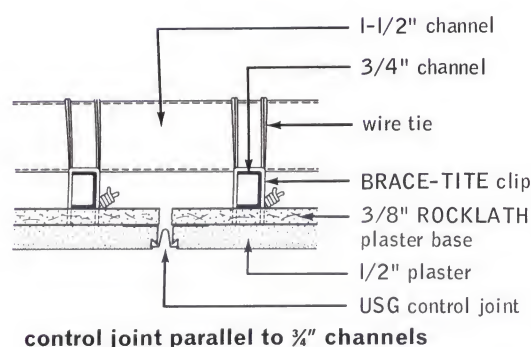
cross section
transverse to
furring channel



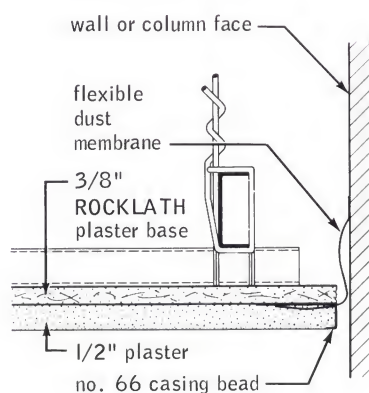
cross section
parallel to
furring channel

details

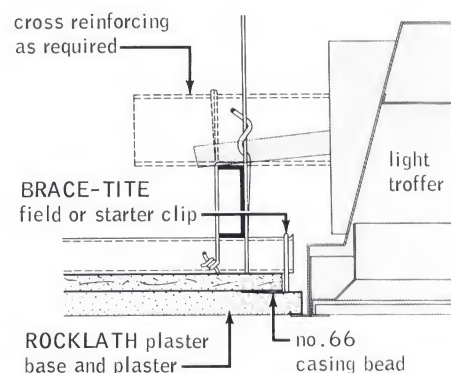
scale: 3" = 1'-0"



perimeter isolation



isolation from walls or columns



vertical section at light troffer

specifications

notes to architect

1. In cold weather, all glazing should be complete and the building must be heated to a minimum of 55°F. Before lathing, ventilation should be provided to carry off excess moisture.

2. Lath and plaster surfaces (non-load bearing) will not resist stresses imposed by structural movement, and are subject to dimensional variations due to changes in temperature and moisture content. It is recommended that lath and plaster surfaces be isolated from all structural elements by control joints or other means where:

- a. a ceiling abuts any structural element, dissimilar wall or partition assembly, or other vertical penetration.
- b. the ceiling construction changes within the plane of the ceiling.

Main runners and cross furring members should not be let into masonry walls or partitions, and clearance of at least 1" must be provided at each end of the channels.

Expansive ceiling areas should have control joints spaced not to exceed 60' in either direction and the area within separated

sections should not exceed 2,400 sq. ft. The continuity of grillage, lath and plaster should be broken over control joints. Control joints may be positioned to intersect light fixtures, heating vents, air diffusers, etc., which are usually considered weak spots.

3. Holes cut in a thin lath and plaster membrane such as vents, grilles, access panels, light troffers, etc., cause a concentration of stresses in the plaster. The use of additional reinforcement is recommended at the weakened area to resist and distribute concentrated stresses where, in the judgment of the architect, for reasons of economy and design, a control joint is not otherwise specified.

4. The spacing of hanger wires and channels are maximum and should not be exceeded. The grillage is designed to support the dead load of lath and plaster and is not designed to support concentrated loads of mechanical equipment or workmen, particularly after the plaster has been applied. Independently supported catwalks and equipment platforms should be provided.

5. Where a plaster surface is flush with metal, metal access panels, light troffers, etc., the plaster should be grooved between the two materials.

6. Where furred or suspended ceilings occur under roof construction, the plenum should be vented according to recommended engineering practice.

7. To retain maximum sound isolation, the integrity of the ceiling should not be voided by openings such as vents, light troffers, etc., so as to create sound leaks. Use sand aggregate only, do not use lightweight aggregates.

8. Where corrosion due to high humidity and/or saline content of aggregates is possible, the use of zinc alloy accessories is recommended.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

materials

See U.S.G. product folders in this series:

Gypsum Plasters Folder for Plaster Specifications.

Plaster Bases & Accessories Folder for General Lathing Specifications.

Paint Products Folder for Paint Specifications.

All materials herein specified shall be manufactured by the United States Gypsum Company, unless otherwise indicated.

- a. ROCKLATH Plaster Base $\frac{3}{8}$ " (Plain) (Perforated) (Insulating) 16" x 48".
- b. BRACE-TITE Field Clip BT-1.
- c. BRACE-TITE Starter Clip BT-1.
- d. BRIDJOINT* B-1 Field Clip.
- e. USG* Cornerite (2" x 2") (3" x 3").
- f. USG (Self-Furring) Junior Diamond Mesh Metal Lath.
- g. USG Casing Bead (specify type from page 2).
- h. USG Control Joint.
- i. USG Cold Rolled Channels $\frac{3}{4}$ ", 1", 1 $\frac{1}{2}$ ", 2".
- j. 9 Gauge Hanger Wire.
- k. 16 Gauge Tie Wire.
- l. 14 Gauge Reinforcing Wire.
- m. 20 Gauge Galvanized 1" Hexagonal Wire Mesh (not available from U.S.G.).

grillage erection

9 gauge hangers shall be spaced not over 4'-0" in the direction of the 1 $\frac{1}{2}$ " main runner channels and not over 3'-0" in the direction at right angles to the main runners, and within 6" of the ends of main runner runs and of boundary walls, girders or similar interruptions of ceiling continuity. (For alternate hangers, main runner channels and cross furring channels see table in U.S.G. Plaster Bases Product Folder.)

Main runners shall be placed not over 3'-0" o.c., properly

positioned, leveled, and hangers shall be saddle tied along runner.

Main runners shall not be let into nor come in contact with abutting masonry walls. Runner channels shall be located within 6" of the walls to support the ends of the $\frac{3}{4}$ " cross furring channels.

Cross furring channels shall be spaced (12") (16") o.c. and securely saddle tied with two strands of 16-gauge tie wire to main runners and shall not be let into or come in contact with abutting masonry walls.

At light troffers or any opening that interrupts the main runner or furring channels, install additional cross reinforcing to restore lateral stability of grillage.

plaster base attachment

ROCKLATH Plaster Base shall be applied with the long dimension at right angles to the $\frac{3}{4}$ " channels and secured to the channels with BRACE-TITE Field Clips. ROCKLATH end joints shall fall between channels and be secured with B-1 Field Clips on each side. Set grounds to ($\frac{1}{2}$ ") ($\frac{5}{8}$ ") (1") minimum thickness over ROCKLATH, including $\frac{1}{16}$ " finish.

related inclusions

One-Hour Rating—Perforated ROCKLATH, $\frac{5}{8}$ " gypsum perlite plaster.

Two-Hour Rating—Furring channel spacing 12" o.c.—lengths of 14-gauge wires shall be run diagonally across ceiling through each BRACE-TITE clip loop— $\frac{5}{8}$ " gypsum sanded plaster.

Alternate Two-Hour Rating—Same as two-hour rating except change furring channel spacing to 16" o.c. and use $\frac{1}{2}$ " gypsum perlite plaster.

Three-Hour Rating—Same as two-hour rating except use $\frac{1}{2}$ " gypsum perlite plaster.

Four-Hour Rating—Same as three-hour rating except add the following: "Staple 20-gauge hexagonal mesh to lath and wire tie mesh to furring channels at long edge of the lath, and use 1" gypsum perlite plaster."

lathing accessories

a. **Cornerite** (2" x 2") (3" x 3") shall be installed in all interior plaster angles. Staple at the edges.

b. **Casing Bead No. ()** shall be installed where indicated. Ends shall be accurately cut and mitered and the casing bead shall provide full plaster grounds when securely installed.

c. **Reinforcing**—Install a strip of self-furring diamond mesh lath over joints between dissimilar plaster bases. At all openings, reinforce the corners attaching a 6" x 12" piece of diamond mesh lath diagonally across the corners.

d. **Control Joint** shall be provided as detailed and where indicated. Staple in place.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (metal products); ROCKLATH (plaster base); BRACE-TITE, BRIDJOINT (clips); TRUSSTEEL (metal studs); STRUCTO-LITE (plaster).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
2 hrs. (beam 2 hrs.)	½" IMPERIAL gypsum pl base Type X & veneer plaster ceiling furred or susp—USG met fur chan 24" o.c.—pl base att with screws 12" o.c.—joints taped—¼" IMPERIAL plaster—2½" conc on riblath or corrug stl deck over bar joist clg wt 4	UL Des 221-2 hr (f)		N/A	clg matls 60	Spacing of furring channel at 16" o.c. recommended	b-1471
3 hrs. (beam 3 hrs.)	¾" IMPERIAL gypsum pl base Type X & veneer plaster ceiling—USG met fur chan 24" o.c.—pl base att with 1" Type S screws 12" o.c.—joints exp or taped—¼" IMPERIAL plaster—3" conc on riblath over bar joist clg wt 4	UL-Des 82-3 hr (f)		N/A	clg matls 62	Spacing of furring channel at 16" o.c. recommended	b-1471
beam application							
3 hrs. (beam only)	Gypsum Lath and Veneer Plaster Caged Beam Fireprfg—1½" USG met run chan brackets 24" o.c.—¾" x 1½" corner angles att to chan brackets—3 layers IMPERIAL pl base Type X att with Type S screws—1" 20-ga. hex mesh on bottom over middle layer—met beads on corners—joints taped—¼" IMPERIAL plaster—2½" conc deck on fluted stl flr	UL Des 214-3 hr (f)		N/A	93	Extends veneer plaster use to beam protection	b-1471

description

In these IMPERIAL Plaster Systems a thin veneer (¼" to ¾" thick) of specially formulated, high-strength gypsum plaster is applied over IMPERIAL Plaster Base. Either IMPERIAL Finish Plaster is applied in a single-coat system, or IMPERIAL Basecoat Plaster is used in a two-coat application as a superior base for IMPERIAL or DIAMOND* Finish Plaster, STRUCTO-GAUGE* Gauging Plaster and lime, or Keene's lime-sand-float finish.

IMPERIAL Plaster Base, 4' wide, has a high-strength, high-density core, either regular or Type X fire-rated, covered with special absorption face paper designed for veneer plastering. Versatile IMPERIAL Base, as outlined below, is used with metal furring channels or in multi-layer gypsum construction with channel brackets and angles to meet design requirements for interior ceilings or caged beam applications.

These incombustible ceiling assemblies consist of IMPERIAL Plaster Base, Type X, screw attached to USG Metal Furring Channels. This specially designed channel, roll-formed from galvanized steel, is 2¾" wide x ⅞" deep with ½" wing flanges. It is firmly clipped or wire tied to suspended main runner channels or wire tied to main support members. USG Brand Screws Type S are used to attach the plaster base to the furring channels. For long span requirements resulting from the location of large ducts or pipes in the ceiling space, the USG Metal Stud may be used as a ceiling furring member in this construction (see table page 2).

function and utility

IMPERIAL Plaster Systems are designed for interior furred or suspended ceilings, caged beam fireproofing or wherever conventional plaster or drywall systems are used. They serve to conceal and protect structural and mechanical elements with a lightweight fire-resistant ceiling that is highly light reflective when unfinished or is easily decorated and maintained. Perfectly integrated components provide beautiful, hard surfaces ready for next-day decoration.

Durability—The high-strength, abrasion- and crack-resistant features of IMPERIAL Plaster (3,000 psi compressive strength) offer excellent durability, obtainable with few other materials.

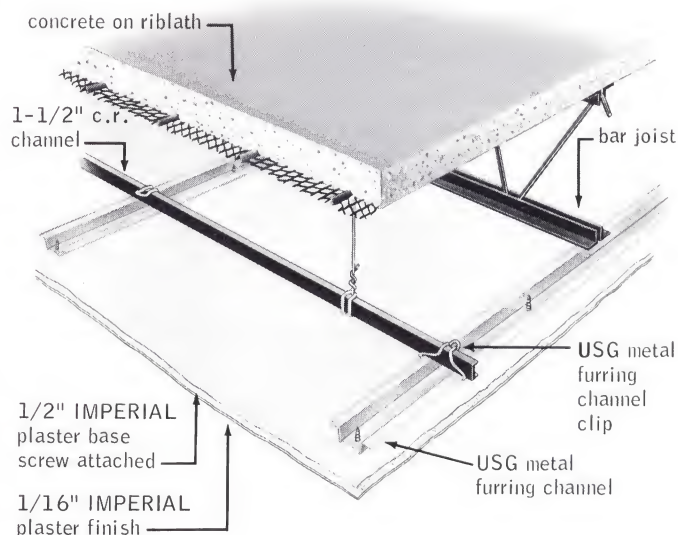
Fire Resistance—Incombustible components provide systems with fire-resistance ratings up to 3 hours (see table above) for furred ceilings and caged beam fireproofing.

Versatility—Adaptable to most dimensions or modules in virtually all types of buildings, these systems meet all normal design and job conditions.

Economy—Simple, inexpensive components erect quickly at a lower cost than conventional plaster systems. Finish is rapidly applied in smooth coat or textured surfaces by machine or hand application.

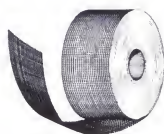
limitations

1. Not recommended for use where ceilings would normally be exposed to excessive moisture or continued wetting.
2. In ceiling constructions certain precautions concerning construction, isolation and ventilation are necessary for good performance (see Specifications, page 3).



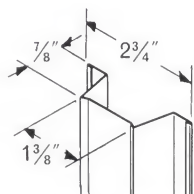


1/2" or 5/8"
IMPERIAL plaster base

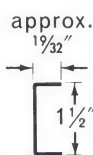


IMPERIAL joint
reinforcement tape

see "plaster bases" product catalog for
full description on accessories & sizes



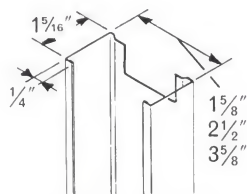
USG metal furring channel



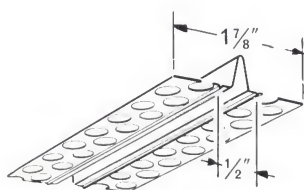
USG cold rolled
channels



USG metal
furring channel
clip



USG metal stud



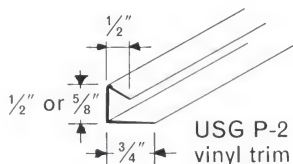
USG control joint #093



1/2" USG brand screw—
type S-12—pan head



1" USG brand screw—
type S—bugle head—
also 1 5/8", 2 1/4"

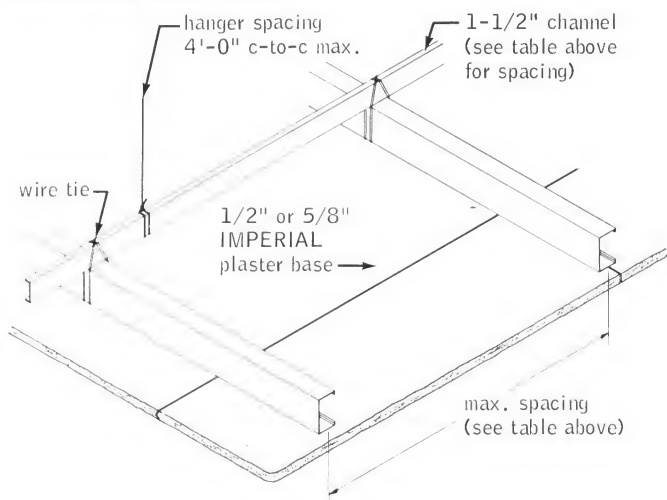


USG P-2
vinyl trim



701 series metal trim

USG metal stud furring



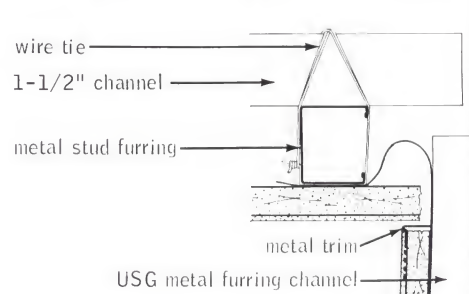
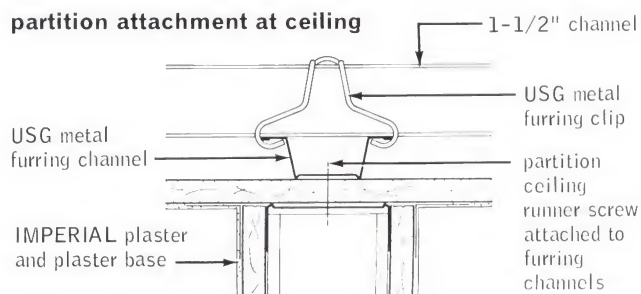
component spacing

type furring member		ceiling systems—component spacing					
		furring member c. to c. spacing		main support member c. to c. spacing		hangers c. to c.	
		for plaster base thickness of:					
		½"	¾"	½"	¾"		
USG Metal Furring Channel		½"	¾"	½"	¾"	4'-0"	
USG Metal Stud	1½" erected with both flanges up and against main support member	16"	16"†	4'-0"††	4'-0"††		
		16"	16"†	5'-0"	5'-0"	4'-0"	
		16"	16"†	7'-0"	7'-0"		
		16"	16"†	10'-0"	10'-0"		

†24" spacing may be used with 2-coat plastering.

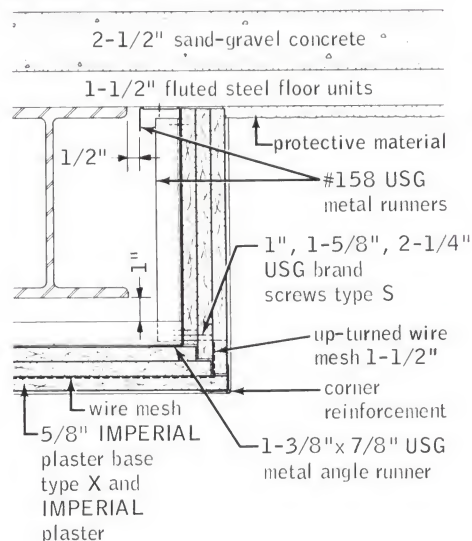
††2'-0" spacing for UL-Des-221-2 hr.

partition attachment at ceiling



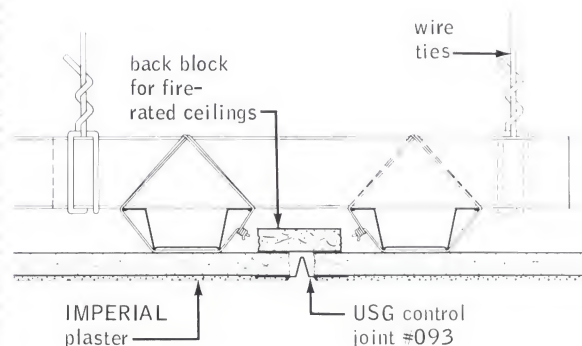
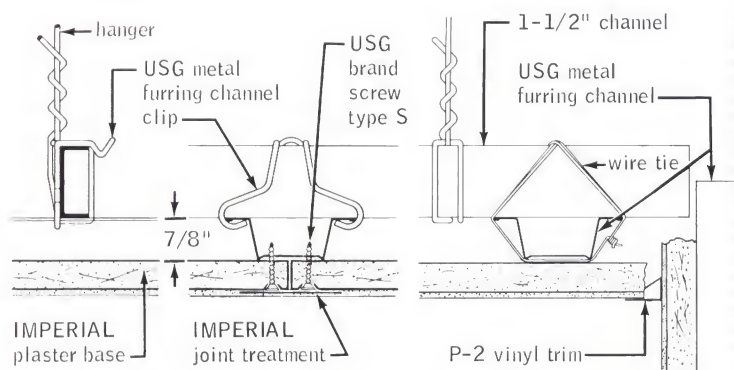
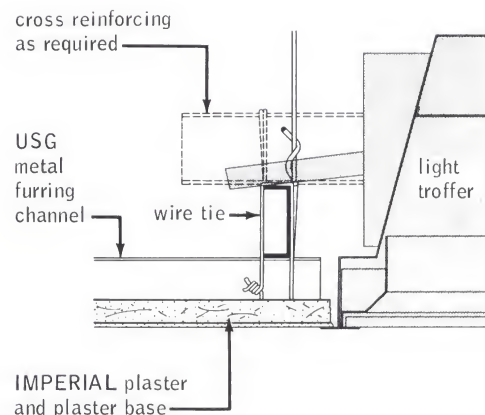
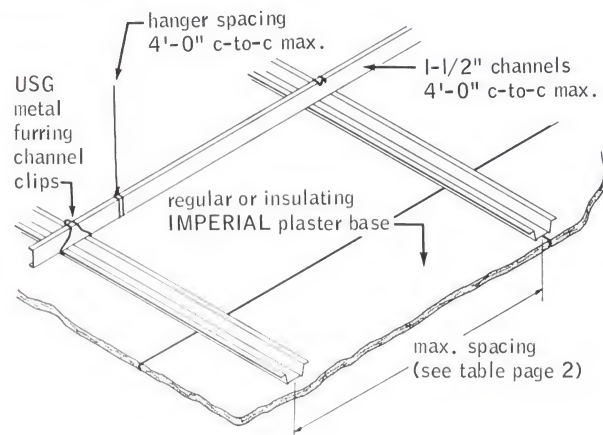
beam protection

design no. 214—3 hr. (beam only)



details

USG metal furring channel



specifications—notes to architect

1. Plaster base surfaces should be isolated with control joints or other means where: (a) a ceiling abuts a structural element, dissimilar wall or partition, or other vertical penetration; (b) construction changes within the ceiling plane; (c) ceiling dimensions exceed 50' in either direction; (d) the area within separate ceiling sections exceeds 900 sq. ft.

2. Penetrations of the lath-and-plaster diaphragm, such as vents, grilles, access panels and light troffers, require additional reinforcement at corners to distribute concentrated stresses if a control joint is not used.

3. Spacing of hangers and channels are designed to support only the ceiling dead load. Heavy concentrated loads should be independently supported.

4. Plenum or attic space closed by ceiling installation should be vented with a min. 1/2 sq. in. net free vent area per sq. ft. of horizontal surface.

5. To comply with UL Designs 82-3 hr. and 221-2 hr., plaster base end joints should be aligned and backed by 2" wide face panel strips laid over the joints. Face panels should be fastened to continuous furring channels centered 2" either side of joints.

6. Proper sealing of IMPERIAL Plaster surfaces before painting is essential.

7. Zinc alloy accessories are recommended where corrosion due to high humidity or saline content of aggregate is possible.

8. See U.S.G. Product Folders in this series: Gypsum Plasters Folder for Plaster Specifications; Plaster Bases & Accessories Folder for General Lathing Specifications; Paint Products Folder for Paint Specifications.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

a. In cold weather, all glazing shall be completed and the building heated to a minimum of 55°F. Before plaster base installation, ventilation shall be provided to carry off excess moisture.

b. When low humidity, high temperatures and rapid drying conditions exist during plaster base and plaster application, DURABOND* Joint Compound and PERF-A-TAPE* Reinforcement shall be used on all joints, internal corners, trim and corner beads and allowed to set and dry thoroughly before plaster application.

Part 2: products

2.1 materials

- a. IMPERIAL Plaster Base—($\frac{1}{2}$ " ($\frac{5}{8}$ ") thick, 48" wide, square edge, (Regular) (Insulating) (Type X), lengths as required.
- b. Furring Channels—USG Metal Furring Channel and/or USG Metal Studs—Nos. 158 ($1\frac{1}{8}$ "), 212 ($2\frac{1}{2}$ "), 358 ($3\frac{3}{8}$ ").
- c. USG Metal Furring Channel Clip.
- d. USG Cold Rolled Channels— $1\frac{1}{2}$ " .
- e. USG Metal Runners— $1\frac{3}{8}$ " x $\frac{7}{8}$ " x 24-ga. Angle Runner and No. 158 ($1\frac{3}{8}$ ") for caged beam construction.
- f. USG Brand Screws— $\frac{7}{8}$ " , 1" , $1\frac{1}{8}$ " , $2\frac{1}{4}$ " Type S; $\frac{1}{2}$ " Type S-12, pan head.
- g. IMPERIAL Tape—(Type P) (Type S) for joint reinforcement.
- h. PERF-A-TAPE Reinforcement and DURABOND Joint Compound.
- i. Accessories—#900 Corner Bead; (701-A) (701-B) Metal Trim; P-2 Vinyl Trim; USG Control Joint #093; 16 ga., 8-ga. Wire.

Part 3: execution

3.1 grillage erection

Space 8-ga. hanger wires 48" o.c. along carrying channels and within 6" of ends of carrying-channel runs. In concrete, anchor hangers by attachment to reinforcing steel, by loops embedded at least 2" or by approved inserts. For steel construction, wrap hanger around or through beams or joists.

Install $1\frac{1}{2}$ " carrying channels (48") (24" for fire-rated construction) o.c., and within 6" of walls. Position channels for proper ceiling height, level, and secure with hanger wire saddle-tied along channel. Provide 1" clearance between runners and abutting walls and partitions. At channel splices, interlock flanges, overlap ends 12" and secure each end with double-strand 16-ga. tie wire.

Erect metal furring channels at right angles to $1\frac{1}{2}$ " carrying channels or main support members. Space furring (16") (24") o.c. and within 6" of walls. Provide 1" clearance between furring ends and abutting walls and partitions. Secure furring to carrying channels with clips or saddle-tie to supports with double-strand 16-ga. tie wire. At splices, nest furring channels at least 8" and securely wire-tie each end with double-strand 16-ga. tie wire.

At light troffers or any openings that interrupt the carrying or furring channels, install additional cross reinforcing to restore lateral stability of grillage.

3.2 ceiling panel installation

Apply plaster base of maximum practical length face down with long dimension at right angles to furring channels. Position end joints over channel web and stagger in adjacent rows. Fit ends and edges closely, but not forced together. Fasten base to channels with 1" type S screws spaced 12" o.c. in field of base and along abutting ends and edges.

3.3 caged beam fireproofing

Position ceiling runners at least $\frac{1}{2}$ " from and parallel to beam and fasten to floor units with $\frac{1}{2}$ " type S-12 pan head screws spaced 12" o.c. Fabricate hanger brackets from $1\frac{1}{8}$ " metal runners allowing 1" clearance at bottom of beam. Space brackets 24" o.c. along beam and attach to ceiling runners with $\frac{1}{2}$ " type S-12 screws. Install lower corner runners parallel to beam and fasten to brackets with $\frac{1}{2}$ " type S-12 screws.

Screw-attach three layers of $\frac{5}{8}$ " IMPERIAL Plaster Base Type X to channel brackets installing vertical panels first, with bottom panels overlapping lower edges of vertical panels in each layer. Attach panels to channel brackets with 1" type S screws 16" o.c. for base layer, $1\frac{1}{8}$ " type S screws 12" o.c. for middle layer and $2\frac{1}{4}$ " type S screws 8" o.c. for face layer. Install wire mesh over bottom middle layer panel, extend $1\frac{1}{2}$ " up each side and fasten with $1\frac{1}{8}$ " screws used to fasten panels.

3.4 accessory application

a. **Reinforcing Tape**—Apply over full length of all plaster base joints; do not overlap at intersection.

Type P Tape—Firmly press along entire length to insure firm wrinkle-free attachment.

Type S Tape—Apply with spring-driven stapler using $\frac{3}{8}$ " staples. Use two staples at each end of tape and stagger intermediate staples 24" o.c. along length of tape. At wall-ceiling intersections and interior corners, staple tape 24" o.c. along ceiling edge or on one edge only. For fire-rated assemblies, staple tape 8" o.c.

b. **Corner Bead**—Reinforce all exterior corners with corner bead fastened with staples 12" o.c. on both flanges along entire length of bead.

c. **Casing Bead**—Where ceiling terminates against masonry or other dissimilar material, apply metal trim over plaster base and fasten with staples 12" o.c.

d. **P-2 Vinyl Trim**—Provide $\frac{1}{8}$ " to $\frac{3}{8}$ " relief for trim at plaster base angle. Remove protective paper from adhesive on web of trim and insert trim into relief, adhesive against wall surface. Press upward until long flange seats against ceiling.

e. **Screws**—Power-drive and set so screwhead is flush with surface of plaster base without tearing through face paper.

f. **Control Joints**—Break plaster base behind joint and back by double furring channels and 2" wide plaster base strip. Attach control joint to plaster base with staples spaced 12" o.c. on both flanges along entire joint length.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured and/or sold by that company: DIAMOND, STRUCTO-GAUGE (plaster); IMPERIAL (plaster and base, joint reinforcement); USG (metal products); DURABOND, PERF-A-TAPE (joint treatment).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

fire rating	description	test no.	stc rating		relative cost index	comments	folder reference
			11-f	16-f			
4 hrs. (beam 4 hrs.)	Metal Lath & Plaster— $\frac{3}{4}$ " cr chan susp $7\frac{1}{4}$ " below deck 2" below beam—3.4# dm met lath & $\frac{5}{8}$ " 100:3 gypsum perlite plaster basecoat— $\frac{1}{2}$ " USG acoust plaster—conc over cellular stl fir clg wt 7	GA-NBS-338 (f)	N/A		clg matls 140		b-1480
4 hrs. (beam 4 hrs.)	Metal Lath & Plaster— $\frac{3}{4}$ " chan 13" o.c. $3\frac{1}{2}$ " below beam—3.4# dm met lath & $\frac{5}{8}$ " STRUCTO-LITE (Type S) plaster—2" conc over fluted stl fir clg wt 6	UL Des 12-4 hr (f)	N/A		clg matls 129		b-1480
3 hrs. (beam 4 hrs.)	Metal Lath & Plaster— $\frac{3}{4}$ " cr chan susp $15\frac{1}{2}$ " below deck & $3\frac{1}{2}$ " below beam—3.4# dm mesh metal lath— $\frac{5}{8}$ " STRUCTO-LITE (Type R) plaster—2" conc over cellular stl fir clg wt 5	UL Des 11-3 hr (f)	N/A		clg matls 127		b-1480
3 hrs.	Metal Lath & Plaster— $\frac{3}{4}$ " cr chan furred or susp—3.4# dm met lath & $\frac{5}{8}$ " neat wood fiber gypsum plaster— $2\frac{1}{2}$ " conc on riblath over bar joist clg wt 9	BMS-92 table 43 (f)	N/A		clg matls 130	Cost index based on furred construction	b-1480
$2\frac{1}{2}$ hrs.	Metal Lath & Plaster— $\frac{3}{4}$ " cr chan furred or susp—3.4# dm met lath & $\frac{5}{8}$ " 100:1-100:1 gypsum wood fiber sand plaster— $2\frac{1}{2}$ " conc on riblath over bar joist clg wt 10	UL R5429-1 (f)	N/A		clg matls 126	Cost index based on furred construction	b-1480
2 hrs.	Metal Lath & Plaster— $\frac{3}{4}$ " cr chan furred or susp—3.4# dm met lath & $\frac{5}{8}$ " 100:2-100:3 gypsum sand plaster— $2\frac{1}{2}$ " conc on riblath over bar joist clg wt 9	BMS-92 table 43 (f)	N/A		clg matls 119	Cost index based on furred construction	b-1480
$1\frac{1}{2}$ hrs.	Metal Lath & Plaster—susp 3.4# dm met lath & 1" 100:2 gypsum sand plaster—rib type stl rf deck with $1\frac{1}{2}$ " wd fiber insul clg wt 13	NBS-58 (f)	N/A		clg matls 129		b-1480
$1\frac{1}{2}$ hrs.	Metal Lath & Plaster—susp 3.4# dm met lath & $\frac{5}{8}$ " 100:2-100:3 gypsum sand plaster—rib type stl rf deck with 1" wd fiber insul clg wt 10	NBS-57 (f)	N/A		clg matls 127		b-1480

beam applications

4 hrs.	Metal Lath & Plaster Caged Beam Fireprfg—3.4# sf dm met lath enclosing beam— $1\frac{1}{2}$ " 100:2 gypsum perlite plaster UL 40 U18.16	UL Des 8-4 hr (Beam 4 hrs) (f)			99		b-1480
3 hrs.	Metal Lath & Plaster Caged Beam Fireprfg—9 ga galv wire wrapped around beam 18" o.c. bent over bottom flange—3.4# sf dm met lath— $\frac{5}{8}$ " mill formulated gypsum plaster UL 40 U18.3 (Type S)	UL Des 10-2 hr (Beam 3 hrs) (f)			84		b-1480

† Plaster thickness measured from face of lath including $\frac{1}{16}$ " finish.

description

These lightweight ceiling assemblies consist of USG Metal Lath and gypsum plaster attached to a conventional light channel grillage furred or suspended from construction above. Metal Lath, expanded from rust-resisting sheet steel, is readily shaped to complex contours or used for flat ceilings.

The systems provide an excellent fireproof membrane to hide pipes, ducts, and conduits. Fire resistance ratings up to 4 hours, suitable for protection of beams and girders, can be obtained (see table above).

function and utility

Furred and suspended ceilings serve to conceal and protect structural and mechanical elements with a lightweight fireproof membrane of metal lath and plaster that is easily decorated and maintained.

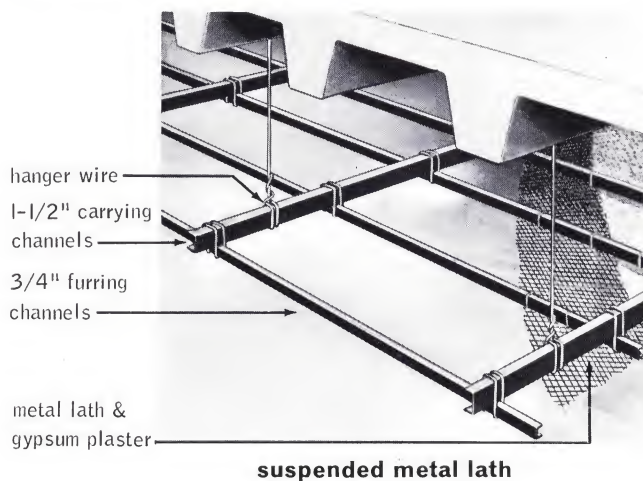
Fire Protection—Incombustible components make possible established fire-resistance ratings of 1 to 4 hours.

Economy—Lightweight installation; system's excellent fire resistance ratings can reduce insurance premiums.

Versatility—Ceilings with complex contours for acoustical treatment or unusual lighting effects are readily shaped with USG Diamond Mesh Lath.

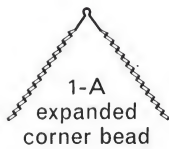
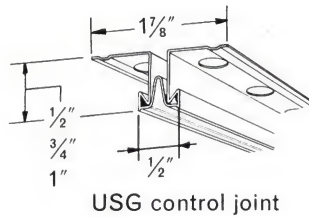
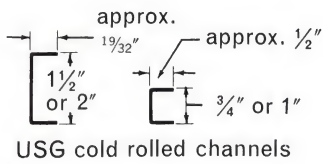
limitations

1. Non-load bearing ceiling constructions.
2. In ceiling constructions certain precautions concerning construction, isolation and ventilation are necessary for good performance (see Specifications, page 3).

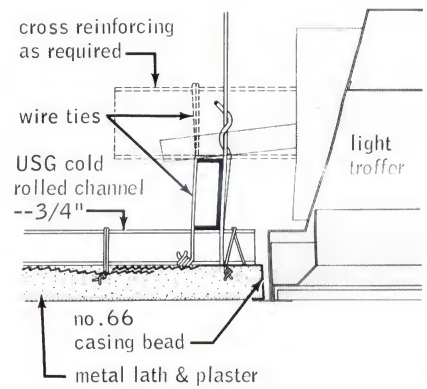
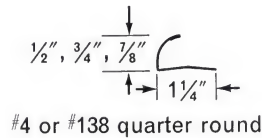
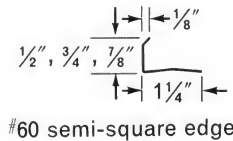
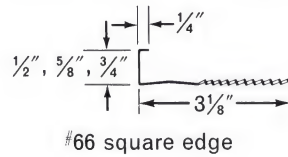


components/suspended details

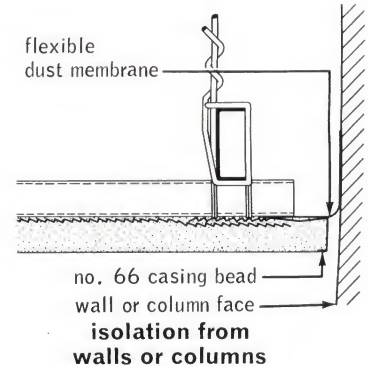
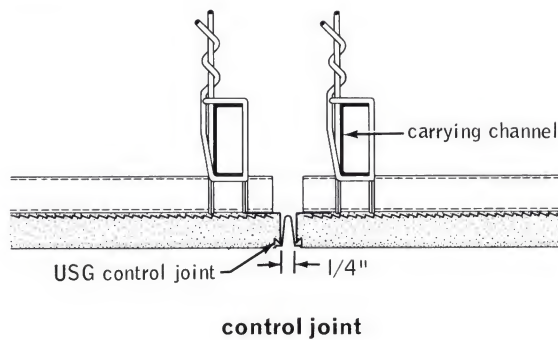
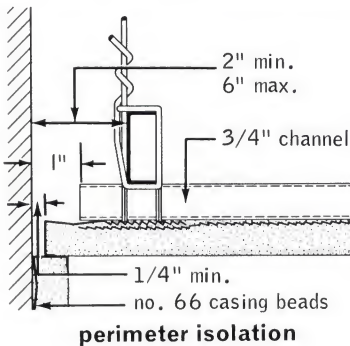
scale 3' = 1'-0"



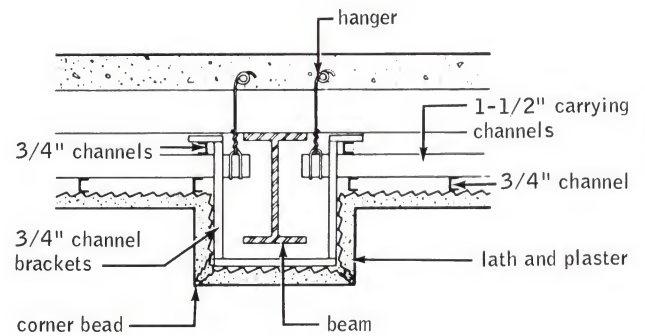
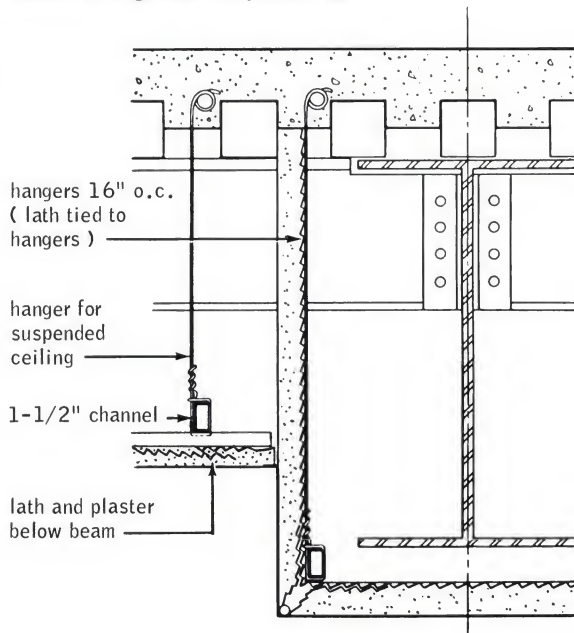
USG casing beads
(expanded or short flange)



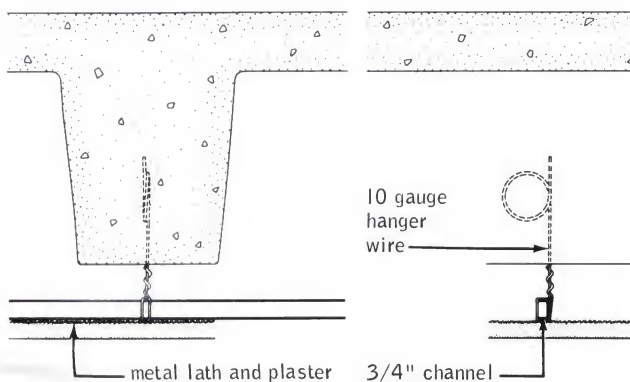
see "plaster bases" product catalog for full description on accessories & sizes



beam and girder fireproofing



furred details



detail for concrete joists

hangers

hanger size & type	max. clg. area support hanger
9-ga. galvanized wire	12.5 sq. ft.
8-ga. galvanized wire	16 sq. ft.
3/16" mild steel rod (1)(2)	25 sq. ft.
1/4" mild steel rod (1)(2)	25 sq. ft.
3/16"x1" mild steel flat (1)(2)	25 sq. ft.

(1) Rods galvanized or painted with rust inhibitive paint, or galvanized straps are recommended where severe moisture conditions may occur. (2) Not manufactured by United States Gypsum.

cross furring members

cross furring size	max. c. to c. spacing of cross furring	main runner or support spacing
3/4" c.r. channel	24"	3'-0"
3/4" c.r. channel	19"	3'-6"
3/4" c.r. channel	16"	4'-0"
3/8" pencil rods (1)	19"	2'-0"
3/8" pencil rods (1)	12"	2'-6"
1" c.r. channel	24"	4'-0"
1" c.r. channel	19"	4'-6"
1" c.r. channel	12"	5'-0"

(1) Primary usage is on furred ceiling members.

specifications

notes to architect

1. In cold weather, all glazing should be complete and the building must be heated to a minimum of 55°F. Before lathing, ventilation should be provided to carry off excess moisture.

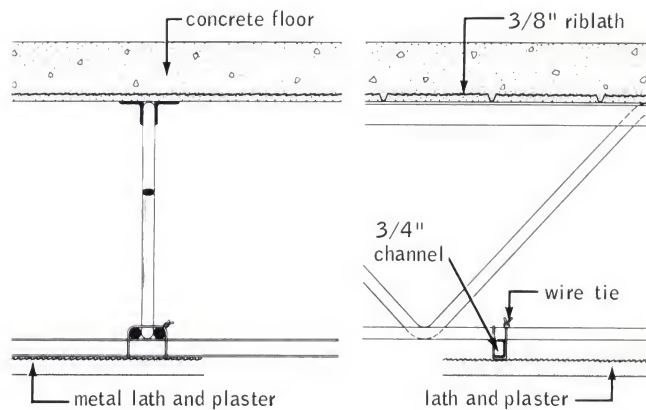
2. Lath and plaster surfaces (non-load bearing) will not resist stresses imposed by structural movement, and are subject to dimensional variations due to changes in temperature and moisture content. It is recommended that lath and plaster surfaces be isolated from all structural elements by control joints or other means where:

a. a ceiling abuts any structural element, dissimilar wall or partition assembly, or other vertical penetration.

b. the ceiling construction changes within the plane of the ceiling.

Main runners and cross furring members should not be let into masonry walls or partitions, and clearance of at least 1" must be provided at each end of the channels.

scale 3' = 1'-0"



detail for steel bar joists

main runner—carrying channels

main runner c.r. channel size	max. spacing of hangers along runners	max. c. to c. spacing of main runners
3/4"	2'	3'
1/4"	3'(1)	2'-3"
1 1/2"	3'	4'
1 1/2"	3'-6"	3'-6"
1 1/2"	4'	3'
2"	5'	4'
2"	6'	2'-6"
2"	7'	2'

(1) For concrete joist construction only—where a 10-gauge wire may be inserted in the joist before the concrete is poured.

span of lath between cross furring

type of lath	max. span of lath
Diamond Mesh	3.4 lbs./sq. yd. 16"
1/8" Z-Riblath	3.4 lbs./sq. yd. 19"
3/8" Riblath	3.4 lbs./sq. yd. 24"

Expansive ceiling areas should have control joints spaced not to exceed 50' in either direction and the area within separated sections should not exceed 2,500 sq.ft. The continuity of grillage, lath and plaster should be broken over control joints. Control joints may be positioned to intersect light fixtures, heating vents, air diffusers, etc., which are usually considered weak spots.

3. Holes cut in a thin lath and plaster membrane such as vents, grilles, access panels, light troffers, etc., cause a concentration of stresses in the plaster. The use of additional reinforcement is recommended at the weakened area to resist and distribute concentrated stresses where, in the judgment of the architect, for reasons of economy or design, a control joint is not otherwise specified.

4. The spacing of hanger wires and channels are maximum and should not be exceeded. The grillage is designed to support the dead load of lath and plaster and is not designed to support concentrated loads of mechanical equipment or workmen, particularly after the plaster has been applied. Independently supported catwalks and equipment platforms should be provided.

5. Where a plaster surface is flush with metal, metal access panels, light troffers, etc., the plaster should be grooved between the two materials.

6. Where suspended ceilings occur under roof construction, the plenum should be vented according to recommended engineering practice.

7. To retain maximum sound isolation, the integrity of the ceiling should not be voided by openings such as vents, light troffers, etc., so as to create sound leaks. Use sand aggregate only, do not use lightweight aggregates.

8. Where corrosion due to high humidity and/or saline content of aggregates is possible, the use of zinc alloy accessories is recommended.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

materials

See U.S.G. product folders in this series:

Gypsum Plasters Folder for Plaster Specifications.

Plaster Bases & Accessories Folder for General Lathing Specifications.

Paint Products Folder for Paint Specifications.

All materials herein specified shall be manufactured by the United States Gypsum Company.

- a. Metal Lath shall be 3.4 lb. (Diamond Mesh) (Z-Riblath) ($\frac{3}{8}$ " Riblath) 27" x 96".
- b. USG Cold Rolled Channels ($\frac{3}{4}$ "), (1"), (1 $\frac{1}{2}$ "), (2").
- c. USG 1-A Expanded Flange Corner Bead.
- d. USG Casing Bead (specify type from page 2).
- e. USG Control Joint.
- f. (8), (9), (10) ga. Hanger Wire.
- g. (16), (18) ga. Tie Wire.

grillage erection

Select hanger, main runner, furring types and spacing from tables, page 3.

(8) (9) (10) ga. hangers shall be spaced not over (2') (2'6") (3') (3'6") (4') (5') (6') (7') in the direction of the main runner channels, not over (2') (2'6") (3') (3'6") (4') in the direction at right angles to the main runners, and within 6" of the ends of main runner runs and of boundary walls, girders or similar interruptions of ceiling continuity. Hangers shall be securely attached to reinforcing steel in concrete construction or shall be provided with a looped end embedded at least 2" within the concrete.

(1 $\frac{1}{2}$ ") (2") main runner channels shall be placed not over (2') (2'6") (3') (3'6") (4') o.c., properly positioned, leveled, and hangers shall be saddle tied along runners. Runner channels shall be located within 6" of walls to support ends of cross furring channels.

Cross furring channels shall be erected at right angles to main runners or framing; spaced (16") (19") (24") o.c. and securely saddle tied with two strands of 16-ga. tie wire to main runners or steel joists. Hangers from concrete joists shall be securely saddle tied or wrapped around furring channels.

Main runners and furring members shall not be let into nor come into contact with abutting masonry walls. Channels shall be spliced by overlapping ends at least 8" and wire tying with two ties of double strand 16-ga. wire 1" from each end.

At light troffers or any opening that interrupts the main runner or furring channels, install additional cross reinforcing to restore lateral stability of grillage.

plaster base attachment

Metal lath shall be applied with the long dimension of the sheet across the supports. The ends of all lath shall be lapped not less than 1". If end laps are made between supports, they shall be adequately laced or tied with 18 gauge tie wire. The sides of diamond mesh lath shall be lapped not less than $\frac{1}{2}$ " The sides of riblath shall be lapped by nesting outside ribs, and shall be wire-tied to every support, and between supports not to exceed 9" intervals. Wherever possible, ends of lath in adjacent courses shall be staggered. Metal lath shall be secured to all supports, with 18 gauge tie wire at intervals not exceeding 6". At all interior angles, metal lath shall be formed into the corners and carried out onto the abutting surface, and adequately secured.

steel beam fireproofing

Framework shall be formed, as shown on drawings, of $\frac{3}{4}$ " channels or pencil rods. $\frac{3}{4}$ " channel longitudinal furring brackets shall not be spaced more than 3'-0". Spacing for brackets formed of $\frac{1}{4}$ " pencil rod shall not exceed 19".

Without longitudinal furring bracket, spacing is limited to 16" for 3.4 lb. diamond mesh lath and a minimum of one longitudinal channel is required to hold bracket alignment. Grounds shall be installed to insure required plaster thickness shown.

lathing accessories

a. **Metal Corner Bead No. 1-A** shall be provided on all exterior plaster corners, and shall be in single lengths where the length of the corner does not exceed standard stock lengths. Fasten securely with wire-ties, spaced not over 8" o.c.; stagger in two wings.

b. **Casing Bead No. ()** shall be installed where indicated. Ends shall be accurately cut and mitered and the casing bead shall provide full plaster grounds when securely installed. Attach with 18 gauge tie wire 6" o.c.

c. **Control Joint** shall be provided as detailed and where indicated. Attach with 18 gauge tie wire 6" o.c.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (metal products); TRUSSTEEL (metal studs); STRUCTO-LITE (plaster).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

description and utility

THERMAFIBER* Insulating Wool consists of spun mineral fibers mechanically formed either into uniform mats of definite dimensions and density or into pellet forms for pouring or blowing into framing spaces. It is available in seven types of blankets, in two types of loose fill, and as semi-rigid perimeter insulation.

Compared to other types of insulation, THERMAFIBER has superior resistance to heat and sound transmission, resilience that assures full installed thickness, and durability. Its greater rigidity aids staying in place. It is quality controlled from start to finish. Other features:

Noncombustible—the mineral fibers will not burn or support combustion. Use of THERMAFIBER blankets increases fire ratings of certain partition assemblies.

Vapor Resistance—three types of THERMAFIBER blankets have built-in vapor barriers to protect against condensation—of aluminum foil or strong asphalted paper with excellent vapor permeability factors of 0.30 and less than 1.00 perm respectively.

Highly effective in sidewalls when used with FIRECODE* Gypsum Sheathing and Insulating SHEETROCK* Wallboard or Insulating ROCKLATH* Plaster Base.

Non-deteriorating—the mineral fibers offer no sustenance to vermin; are resistant to decay and corrosion.

Moisture Resistance—mineral wool fibers do not absorb moisture. If wet, they dry quickly with adequate ventilation and recover their original insulating efficiency.

Rigidity, Strength—THERMAFIBER blankets have exceptional built-in rigidity, especially important for ceiling work. Batts have triple-thick, extra-wide flanges which make installation quicker and more secure.

Ventilation—insulation of attics and crawl spaces should be accompanied by adequate ventilation—to help reduce air conditioning costs and control moisture condensation.

Sound Control Value—in addition to providing thermal resistance, THERMAFIBER wool increases sound isolation properties and STC ratings when used in certain partition and floor/ceiling assemblies.

general limitations

1. Although the vapor barriers of THERMAFIBER blankets protect against the formation of condensation and reduce the danger of damage caused by condensation, over-humidification must be guarded against. If the relative humidity in the building is excessive, steps must be taken to reduce the sources of moisture.

2. The insulation value of assemblies is generally increased by recess application of wool blankets, thereby gaining an additional air space. Recommended minimum air space thicknesses are: in walls, $\frac{3}{4}$ "; in ceilings and floors, 1". With masonry walls, an air space of at least $\frac{3}{4}$ " should be provided between insulation and exterior wall. If THERMAFIBER Wool is placed in direct contact with exterior walls, the masonry must be watertight. Positive vapor barriers such as Insulating SHEETROCK or ROCKLATH or 4 mil polyethylene film should be applied to room side of furring members in order to reduce possibility of condensation on cold masonry walls.

*Reg. U.S. Pat. Off.



3. Blankets, other than Reverse Flange Blankets, placed between floor joists over unexcavated or basement areas should be supported on the underside by chicken wire or "Tiger Teeth" type wire supports.

resistance standards

In accordance with industry standards, THERMAFIBER Insulation products are labeled with each product's mass resistance (of insulation only), thickness and installed resistance.

Architects can now specify insulation by specific thickness and thermal resistance of insulation only or by Installed Resistance Number needed for each application. See comparison of "R" and "U" values, listed below, and "R" values for products shown on pages 2 and 3.

section to be insulated	U-value desired	THERMAFIBER "R" number needed to meet "U" shown
Ceilings	0.04‡ 0.05‡ 0.07 0.10	R-24‡ R-19‡ R-13 R-9
Walls	0.07‡ 0.09 0.11	R-11‡ R-8 R-7
Floors (over unheated space)	0.07‡ 0.09 0.11	R-13‡ R-9 R-7

‡These values meet the "All-Weather Comfort Standard" established for maximum thermal performance, recommended for electrically heated and air-conditioned buildings and other quality home installations.

types and functions

insulating blankets

THERMAFIBER Regular Blankets are faced on one side with strong asphalted vapor barrier that extends to form nailing flanges, and are encased on the other sides with porous kraft breather paper. These batts also are supplied open-faced without breather paper. Uses: ceilings, floors, walls. Available in 2" to 6" thicknesses and in width to accommodate common structural spacings. Federal Specs: meet HH-I-521D Type II.

(continued on page 2)

resistance values—THERMAFIBER Insulating Blankets

product & thickness	mass resistance (R) insulation only	conduct- ance (C)	installed resistance (†) (R) winter values for heating (heat loss)			installed resistance (†) (R) summer values for air-conditioning (heat gain)		
			ceilings	floors	walls	ceilings	floors	walls
kraft-faced blankets								
2"	7.40	0.135	9 (2)	9 (2)	8 (1)	9 (2)	9 (2)	8 (1)
3"	11.10	0.090	13 (2)	13 (2)	11 (3)	13 (2)	13 (2)	11 (3)
3⅞"	13.41	0.074	15 (2) 14 (3)	15 (2)	13 (3)	15 (2) 14 (3)	15 (2)	13 (3)
5¼"	19.00	0.054	19 (3) 20 (2)	21 (2)	—	19 (3) 21 (2)	20 (2)	—
6"	22.20	0.045	24 (2) 23 (3)	24 (2)	—	24 (2) 23 (3)	24 (2)	—
foil vapor barrier side								
1½"	5.55		8 (2)	11 (2)	9 (1)	11 (2)	8 (2)	9 (1)
2"	7.40		10 (2)	13 (2)	11 (1)	13 (2)	10 (2)	11 (1)
2⅝"	9.72		13 (2)	15 (2)	13 (1)	15 (2)	13 (2)	13 (1)
3"	11.10		14 (2)	17 (2)	11 (3)	17 (2)	14 (2)	11 (3)
5"	18.50		21 (2)	24 (2)	—	24 (2)	21 (2)	—
6"	22.20		25 (2)	28 (2)	—	28 (2)	25 (2)	—
foil both sides								
2"	7.40		11 (2)	16 (2)	11 (1)	16 (2)	11 (2)	11 (1)
3"	11.10		15 (2)	20 (2)	11 (3)	20 (2)	15 (2)	11 (3)

NOTE: All THERMAFIBER blankets are manufactured to possess conductance (k) of 0.27 and resistance (1/k) of 3.70 per in. thickness.

†Installed Resistance is the sum of the mass resistance and the resistance of adjacent air spaces or air surfaces which may exist. (1) Install with ¾" or larger air space between vapor barrier and wall surface. (2) Install with 1" or larger air space between vapor barrier and floor or ceiling surface. (3) Installed with no air space.

(continued from page 1)

Acoustic impedance (Z_0) in rayls and density for 2" and 3" thick regular blankets are:

blanket thickness	density —pcf	frequency—Hz			
		250	500	1000	2000
2"	1.7	1370	625	585	680
3"	1.7	1060	525	465	795

THERMAFIBER Reverse Flange Blankets are designed for application from the exterior or "cold" side of framing members. Fully enclosed in same manner as THERMAFIBER Regular Blankets, except that stapling flanges extend from breather side. **Uses:** for floors over unheated crawl spaces, recessed between joists; also in walls and ceilings accessible from outside. Available in 1½", 2" and 3" thickness, 15" width. Federal Specs: meet HH-I-521D Type II.

THERMAFIBER Silver Shield Blankets are enclosed in highly polished aluminum foil, except for mill cut ends, to reflect up to 95% of radiant heat striking them. Back surface is perforated to allow breathing of mineral wool fibers and minimize vapor traps; foil on vapor barrier side is not perforated. Kraft paper sides separate front and back foil panels to prevent heat transfer. Two types—aluminum foil on both

sides, or on vapor barrier side only. **Uses:** ceilings, walls, floors with air space as noted in chart—most effective with air conditioning and in areas of extreme summer temperatures. Available in 1½", 2", 2½" and 3" thickness in two types, and in 3½", 5" and 6" thickness with vapor barrier one side only, 15" and 23" width. Federal Specs: meet HH-I-521D Type III.

THERMAFIBER Flame-Resistant Insulating Blankets are open-faced, foil-covered on vapor barrier side, with stapling flanges. Fire hazard classification: flame spread 25, fuel contributed 2, smoke developed 28. Available in 2", 2½" and 3" thickness, 15" and 23" width, 48" length. Federal Specs: meet HH-I-521D Type III.

THERMAFIBER Fast-Fit Blankets meet the need where quick application is the most important factor. They have no flanges, thus eliminate need for staple fastening; are made slightly wider than normal to give snug friction fit between studs; open-faced on breather side. **Uses:** for sidewalls only. Fast-Fit Blankets require a separate vapor barrier, such as Insulating SHEETROCK® Wallboard or Insulating ROCKLATH® or IMPERIAL® Plaster Bases, or a 4 mil polyethylene film. Available in 2", 3" and 3½" thickness, 15" width. Federal Specs: meet HH-I-521D Type I.



THERMAFIBER M-S Blankets are specially designed for insulating exterior furring and curtain wall assemblies which utilize metal studs. They are flangeless, open-faced on breather side, made like Fast-Fit Blankets for friction fit and require same types of separate vapor barrier. Available in 2", 3" and 3½" thickness, 16" and 24" width, 48" and 96" length. Federal Specs: meet HH-I-521D Type I.

loose insulation

THERMAFIBER Blowing Wool consists of mineral fibers formed into pellets for installation by pneumatic machine. Fire hazard classification: flame spread 12, fuel contributed 0, smoke developed 0. Uses: in attics or floors directly over ceiling; in wall spaces of existing buildings. Federal Specs: meet HH-I-1030 Type I Class A. FHA now requires blowing wool installation to meet specific "R" values with thicknesses, coverages and weights as listed below:

(R) value (1)	R-30	R-24	R-19	R-13	R-11	R-9
min. thickness	9"	7¼"	5¾"	3⅞"	3¼"	2¾"
max. coverage sq. ft./30-lb. bag	20	26	33	51(2)	61	71
weight installed psf	1.54	1.21	.97	.65(2)	.55	.46

(1) Based on "k" value of 0.30 achieved with wool density of 2 lbs. per cu. ft. (2) R-12 value when used to fill 3½" thick cavity of frame wall; coverage reduced and density increased due to compacting of wool fibers. 1/k: 3.33.

THERMAFIBER Handy Fill is mineral fiber made in nodule form for pouring and spreading by hand. Has excellent uniformity and a special treatment to reduce dust. Uses: in attics or floors accessible from above, installed directly into joist cavity. Federal Specs: meet HH-I-1030 Type II Class A. Applied thicknesses, coverages to provide "R" values shown:

(R) value (1)	R-24	R-21	R-19	R-13	R-11	R-7
min. thickness	7"	6"	5½"	3⅞"	3"	2"
max. coverage sq. ft./18-lb. bag	12½	15	16	25	30	45

(1) Resistance of mass insulation plus 0.6 resistance units for value of exposed surface air film. Based on "k" value of 0.30. 1/k: 3.33.

sound attenuation blankets

THERMAFIBER Sound Attenuation Blankets are a paperless, semi-rigid spun mineral fiber mat which substantially improves STC ratings when used in stud cavities of various U.S.G. partition assemblies as shown below (see Construction Selector—in Sweet's Sec. 9.5—for specific assemblies). Each blanket has a dense, highly complex labyrinthine structure



THERMAFIBER
Sound Attenuation Blanket

USG Perimeter
Insulation

composed of millions of sound-retarding air pockets. This maze of pockets traps sound energy, converts it to heat, and sharply reduces sound transmission. Available in 1", 1½" and 2" thickness, 16" and 24" width, 48" length. Fire hazard classification: flame spread 25, fuel contributed 20, smoke developed 0. Federal Specs: meet HH-I-521D Type I.

Drywall Partitions

Double and Triple Solid	55 to 60
Metal Stud—Double Layer Wallboard	53 to 59
Metal Stud—Single Layer Wallboard	47 to 51
Movable	45 to 50

STC Rating

Veneer Plaster Partitions

Double Solid Laminated Base	54
Metal Stud—Double Layer Base	48 to 53
Metal Stud—Single Layer Base	45
TRUSSTEEL* Stud—Resilient Plaster Base	48

Conventional Plaster Partitions

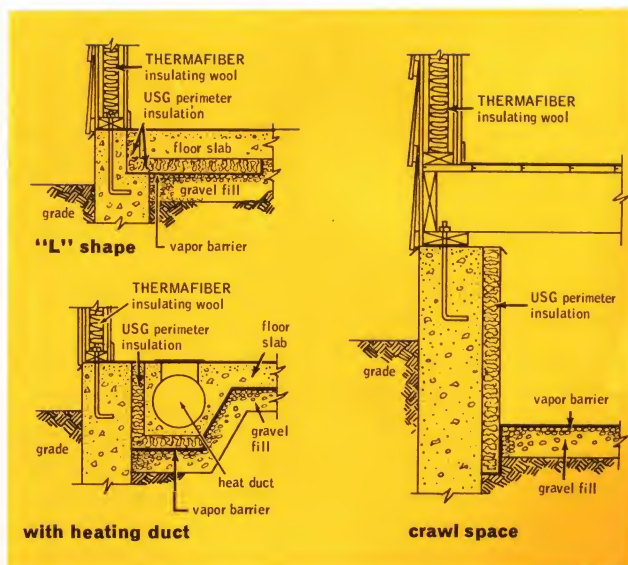
Gypsum Tile—Resilient Gypsum Lath	52 to 55
TRUSSTEEL Stud—Resilient Gypsum Lath	46 to 50
Metal Stud—Gypsum Lath	49

Density, thickness and fiber diameter are all basic properties of sound attenuation blankets. Acoustic impedance (Z_o) is the measurement of a blanket's resistance to flow of acoustic energy which is determined by the combined performance of these properties. Acoustic impedance (Z_o) in rayls for sound attenuation blankets are:

blanket thickness	density —pcf	frequency—Hz			
		250	500	1000	2000
1"	4.0	2575	1390	725	540
1½"	3.0	2405	970	450	330
2"	2.5	1800	635	360	665

perimeter insulation

USG Perimeter Insulation is a semi-rigid mineral wool board designed to reduce heat loss along foundation perimeters in slab and crawl space construction. Made of non-capillary inorganic fibers bonded with phenolic resin, it will not wick moisture from damp areas; is non-combustible and permanent. Density of 8 lbs. per cu. ft., compression of not more than 10% to meet FHA MPR #54 and #300 requirements. Uses: provides high thermal resistance in L-shaped application with floor slabs, with crawl spaces used as heating plenums, and insulating heating ducts in slabs (details below);



should not be used below the normal water table. Available as follows:

thickness (in.)	width (in.)	length (in.)	approx. weight psf.	conduct- ance (C)	resist- ance 1/C
1½	12,18,24	48,60	1.01	0.16	6.25
1	12,18,24	48,60	0.67	0.24	4.17
¾	12,18,24	48,60	0.50	0.32	3.13

Federal Specs: USG Perimeter Insulation meets HH-I-562 Type 1 Class 2 (as amended). Conductivity "k" factor: 0.24; resistivity 1/k factor: 4.17.

specifications

note to architect

See U.S.G. literature on aluminum louvers for ventilation requirements; U.S.G. Construction Selector for STC ratings of partition and floor/ceiling assemblies with THERMAFIBER Wool; U.S.G. Product Folder f-1871 for USG Sound Deadening Board, another sound control product.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials included herein shall be manufactured by United States Gypsum Company.

Part 2: products

2.1 materials

2.1.1 Insulating Blankets: THERMAFIBER (Regular) (Open-Faced) (Reverse Flange) (Silver Shield) (Flame-Resistant) (Fast-Fit) (M-S) blankets, () thick, () wide, () long.

2.1.2 Loose Insulation: THERMAFIBER (Blowing Wool) (Handy Fill), applied () thick to provide a Resistance of () .

2.1.3 Sound Attenuation Blankets: THERMAFIBER Sound Attenuation Blankets, () wide, () thick, 48" long.

2.1.4 Perimeter Insulation: USG Perimeter Insulation, () thick, () wide, () long.

Part 3: execution

3.1 insulating wool application

Install THERMAFIBER Insulation in framing spaces, including areas between floor joists and outside headers, leaving no voids. Install wool behind electrical outlets, around structural obstructions,

jamb, sills, etc. Cover all such areas as well as plates and headers with vapor barrier paper.

a. Insert flanged blankets between framing members, vapor barrier facing inward and recessed (¾") (1") from face of framing, flanges stapled to sides of framing members at each end of blanket and along length of flanges. Staple flanges 8" o.c. max. on ceilings, 6" o.c. max. on walls and 4" o.c. max. on floors. Use ⅝" staples in a trigger or power stapler.

If required by local code, flanges on vapor barrier sides of blankets may be stapled to faces of framing members providing abutting flanges do not overlap and are stapled flat, without bulges or folds that will prevent tight attachment of interior surfacing materials.

b. Install flangeless blankets between studs from interior side of wall, recessed slightly from stud faces. Do not staple—friction-fit holds blankets in place. Provide separate vapor barrier with installation of: Insulating (SHEETROCK Wallboard) (ROCKLATH Plaster Base) (IMPERIAL Plaster Base); (4 mil polyethylene film).

c. Apply loose wool (with pneumatic blowing machine according to U.S.G. directions to achieve a density of 2 lbs./cu. ft.) (manually and spread to required thickness) to provide a Resistance of () . Apply to uniform thickness taking care not to block soffit vents.

3.2 sound blanket application

Install THERMAFIBER Sound Attenuation Blankets in stud cavities of sound-rated partitions, attaching to one base layer of (SHEETROCK Wallboard) (ROCKLATH Plaster Base) (IMPERIAL Plaster Base).

Attach with (five ⅝" long staples driven through each blanket, one in center and one spaced in approx. 3" from each corner. For reinforcement, drive staples to straddle wallboard or similar nails placed against blankets, or through 1½" lengths of PERF-A-TAPE* Reinforcing Tape or equivalent) (DURABOND* 200 or 400 Adhesive applied to base layer, two beads per blanket located 1" from each end, or applied to base layer in evenly distributed spots; press blankets firmly against adhesive). Butt ends of blankets closely together and fill all voids. Allow air space between backs of blankets and back of opposite face layer.

3.3 perimeter insulation application

Install USG Perimeter Insulation, as shown in details, (vertically to interior of foundation walls before backfill, gravel base layer or concrete slab are put in place) (vertically to exterior of foundation wall before backfill, gravel base layer or concrete slab are put in place. Attach to foundation exterior with mastic asphalt cement. Protect top edge with metal flashing, exposed face with asbestos cement board or portland cement stucco) (horizontally atop leveled, tamped gravel fill, inside and abutting foundation wall). Install 55# asphalt roll roofing over the underbed (optional).

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company and are used throughout this catalog to designate particular products manufactured by that company: USG (insulation and metal products); THERMAFIBER (insulation products); SHEETROCK (gypsum wallboard); ROCKLATH, IMPERIAL (plaster base); FIRECODE (sheathing); DURABOND (adhesive); PERF-A-TAPE (joint treatment); TRUSSTEEL (metal studs).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY and any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

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949-3436; Tampa, 253-5325 • **GEORGIA:** Atlanta, 261-8520 • **ILLINOIS:** Chicago, 321-4100 • **INDIANA:** Indianapolis, 546-4777 • **KENTUCKY:** Louisville, 897-2529 • **LOUISIANA:** New Orleans, 241-2874 • **MARYLAND:** Chevy Chase, 654-9004 • **MASSACHUSETTS:** Boston, 241-8900 • **MICHIGAN:** Southfield, 357-2000; Grand Rapids, 459-4477 • **MINNESOTA:** Minneapolis, 929-4626 • **MISSOURI:** Kansas City, 931-1388; Maryland Heights, 872-9172 • **NEBRASKA:** Omaha, 551-6166 • **NEW JERSEY:** Montvale, 212-935-4446 • **NEW MEXICO:** Albuquerque, 268-2457 • **NEW YORK:** Buffalo, 948-3631; Latham, 785-5872; New York, 935-4402; Oakfield, 948-3631 • **NORTH CAROLINA:** Charlotte, 332-5023; Raleigh, 828-5441 • **OHIO:** Cincinnati, 771-3215; Cleveland Heights, 932-5034; Columbus, 451-7710 • **OKLAHOMA:** Oklahoma City, 946-1494 • **OREGON:** Portland, 227-3731 • **PENNSYLVANIA:** Harrisburg, 234-3251; Philadelphia, 525-7630; Pittsburgh, 341-0364 • **TENNESSEE:** Nashville, 254-1928 • **TEXAS:** Dallas, 351-5386; Houston, 675-3136; San Antonio, 824-4534 • **UTAH:** Salt Lake City, 359-3751 • **VIRGINIA:** Arlington, 628-3818; Norfolk, 543-3586; Richmond, 359-4008 • **WASHINGTON:** Bellevue, 455-2595 • **WISCONSIN:** Milwaukee, 476-5920.

description and utility

The complete and modern product line offered by United States Gypsum in paints and surface treatment is a natural outgrowth of the company's experience. As the world's largest producer of gypsum and other wall and ceiling construction materials, U.S.G. should know best how to *finish* those surfaces.

Today's full range of USG interior, exterior and special coatings reflects decades of research and testing, both in the laboratory and the marketplace. U.S.G. has the broadest job experience in the industry; 45% of all American homes are built or finished with its various products. Finishing products undergo daily analysis and improvement at the same Research Center (illustrated) where structural materials are developed—to meet standards of quality without compromise.

Use of USG paints brings the important advantage of dealing with a single manufacturer who is responsible for all components of the finished wall or ceiling—lath and plaster or gypsum wallboard and joint treatment, drywall screws and adhesives, metal studs and accessories, insulation, sheathing, ceiling tile, gypsum roof deck, asphalt roofing and stucco or asbestos siding. All are made by U.S.G. to *work together*.

This catalog covers the finishing products recommended for virtually all U.S.G. partition and ceiling assemblies, as well as for exteriors. A complete, quick-reference Selector Guide appears on pages 4 and 5; general specifications start on page 6. Drywall joint treatment products are covered separately in Folder f-1881. USG paint products are available in six special-purpose groups:

Interior Finishes—emulsion line headed by GRAND PRIZE* Latex Wall Paint and TEXOLITE* Alkyd Latex Paint, both with matching latex and solvent-thinned semi-gloss enamels. In addition, a complete range of spirit-thinned finishes including PRO-KYD Alkyd Flat Wall Paint, DIAMOND Lustre and Egg-shell Enamels.

Exterior and Masonry Coatings—from a recent breakthrough in U.S.G. research, general purpose breather-type house paints perform superbly over wood siding and shingles as well as masonry surfaces. A full color range is available in solvent finishes, headed by IMPERIAL* Gloss House Paint and Trim Colors, plus USG Low Lustre House Paint and USG Porch and Floor Enamel; also in latex type exterior finishes such as tough USG One-Coat Latex House Paint and low-sheen USG Vinyl Exterior Paint. Masonry coatings include CEMENTICO* hydraulic cement paint, DURA-DRI* moisture control coating, and USG Latex Floor Paint.

Wood Stains and Varnishes—pigmented USG Wood Stains, available in 8 colors, are outstanding in uniformity of final finish. Varnish products, all of superior durability, include USG Polyurethane Clear Finish, USG Satin Finish, and USG Floor and Trim Varnish.

Texture Finishes—the industry's broadest line, leading the resurgence of surface ornamentation, includes ready-to-use USG Texture I sand-finish and Texture II ripple-finish; USG Texture and TEXTONE* in powder form; IMPERIAL QT Texture Finish for an acoustical appearance on ceilings; USG Spray Texture; A-B TEX* for special effects and DURACAL Exterior Texture for exterior spray application.

Surface Preparation Products—long-established leadership items are SHEETROCK* Sealer and pigmented TEXOLITE Primer-Sealer; line includes latex and alkyd interior primers, enamel undercoat, oil-based exterior primers, penetrating sealer and block filler.

Special Coatings—major advances, fast rising in architectural uses, are two new Epoxy Coatings systems providing sanitary ceramic-like protection for walls. Also excelling in maintenance value is METAL COAT Enamel, available in a select color line, plus three companion primers to retard and prevent rust.



general limitations

The most common causes of paint failures on interior surfaces are: (a) Base surface not dry; (b) Surface improperly cleaned and patched; (c) Variable suction in the base; (d) Failure to use proper treatment for different surfaces, conditions, and finishes. It is estimated that 75% of interior paint failures are due to neglected or improper preparation before the paint can was opened.

Satisfactory results with USG paint products, as with all finishes, depend upon good job practices:

1. Surfaces to be painted must be clean, dry, sound; free of grease, oil, wax, other foreign matter; free of flaking, crumbling or chalking conditions; must be properly prepared.
2. Atmospheric and structural temperatures must be 50° to 60° minimum during application, depending upon type of finish; consult directions.
3. Paints of the water-thinned type should not be used over wallpaper having water-soluble colors; must be protected from freezing.
4. New unpainted plaster, stucco, poured concrete, patches in masonry surfaces must age 30 to 60 days minimum prior to paint application; consult directions.

Any other limitations are stated in the label directions for each product.

types and functions

1. Interior Wall and Ceiling Paints

GRAND PRIZE Latex Wall Paint—vinyl plastic flat paint for smooth velvet finish, ready to use. Resists alkalinity in plaster, concrete and joint treatment. Exceptional hide, low sheen and extreme washability. The top-quality latex flat in U.S.G. line, covers most surfaces in one coat. Quick-drying, with excellent leveling qualities. Styrene-butadiene latex vehicle. 20 ready-mixed colors, matched in two enamels below.††

GRAND PRIZE Latex Semi-Gloss Enamel—premier medium-gloss enamel, water-thinnable, matching all ready-

mixed colors of GRAND PRIZE wall paint. For all interior surfaces where semi-gloss finish is desired. Quick-drying, but good leveling. Superior hide, gives uniform sheen in 50° range; highly washable and stain-resistant. Self-priming on new dry-wall surfaces. Acrylic copolymer emulsion modified with alkyd resin.††

USG Satin-Lustre Enamel—spirit-thinned alkyd semi-gloss matching all ready-mixed colors of GRAND PRIZE wall paint. For wood trim and wall surfaces of kitchen, bath, laundry; sealer or undercoater required on new work and porous surfaces. Dries to medium sheen with outstanding washability, excellent color retention. Alkyd oil resin vehicle.††

SHEETROCK Finish Coat—a special latex coating for unpainted or painted gypsum wallboard. Provides superior velvet finish with excellent washability. Heavy bodied—one coat covers when applied as directed. Vehicle: all latex.

USG Spray Coat—spray-applied latex coating for unpainted gypsum wallboard and most interior surfaces. Produces smooth heavy film of uniform sheen over hard or porous surfaces. Highly scrubbable; burnish and stain-resistant; fast drying. Available in three types: **Soft Lustre**, a semi-gloss eggshell finish, smooth or may be lightly textured in application; **Matte Finish**, a flat enamel finish with heavier texture; **Flat Finish**, a dull, dead-flat finish. Acrylic latex vehicle.

TEXOLITE* Alkyd Latex Wall Paint—ready-to-use flat finish, offers good quality with economy, combines easy-flowing application of latex paints with flatness of alkyds. Good one-coat hide can usually be achieved; provides a washable film. Uses water for thinning and clean-up. Alkyd modified styrene-butadiene latex vehicle. 14 colors, matched in **GRAND PRIZE Latex Semi-Gloss Enamel** and oil-based **USG Semi-Gloss Enamel**. Also available: **ADD-A-FLECK** special liquid additives containing gold metal flake or colored enamel fleck to produce sparkling multi-color appearance; added to any color of **TAL** paint; for spray application only.††

PRO-KYD Alkyd Flat Wall Paint—outstanding spirit-thinned finish for interior walls and woodwork. Excellent hide and leveling, readily washable. Self-priming except over patched, porous or unpainted surfaces. Soya alkyd resin vehicle. Available in white only, plus machine tint bases.

DIAMOND Lustre and Eggshell Enamels—high gloss and low-lustre finishes of extreme durability to meet the most stringent maintenance demands. Spirit-thinned; provide flexible film with exceptionally high hide. Soya alkyd resin vehicle. White and tint bases available.††

††For flame spread and growth generation resistance, request applicable Data Sheet.

USG Machine Color System: more than 1000 appealing custom colors are available on special order through dealers using USG Paint Colorants. This range offered in ten products—GRAND PRIZE Latex Wall Paint, oil-based PRO-KYD Alkyd Flat Wall Paint, GRAND PRIZE Latex Semi-Gloss Enamel, alkyd oil-based USG Satin-Lustre and DIAMOND Lustre and Eggshell Enamels, oil-based IMPERIAL Gloss House Paint, USG One-Coat Latex House Paint, USG Latex Floor Paint, and USG Wood Stain.

2. Exterior and Masonry Coatings

IMPERIAL Gloss House Paint—U.S.G.'s finest exterior gloss finish, with a balanced oil-based formula for long weather resistance. Heavy bodied, with superior hiding and controlled chalking qualities. Tough, flexible film resists cracking and checking, offers maximum protection for substrates. Excellent adhesion, mildew and fume resistance. One coat is sufficient on most surfaces when used over **IMPERIAL House Primer**. Linseed oil vehicle. 7 ready-mixed colors, plus white and 6 darker shades in **IMPERIAL Trim Colors**. Also available, in



white only, is **IMPERIAL One-Coat House Paint** for one-coat finish on most repaint work, exceptional durability; used over **IMPERIAL House Primer #894** on new wood.

USG Low-Lustre House Paint—solvent-thinned, quality low-sheen exterior finish offers superior hiding in one coat over primed surfaces—wood shingles and shakes, all types of siding. Self-priming when used over most previously painted surfaces. Linseed alkyd resin vehicle. Available in 11 ready-mixed colors which may be intermixed.

USG One-Coat Latex House Paint—breather-type modified acrylic emulsion with major advantages over other types: quick-drying, non-yellowing, longer-lasting, mildew-resistant, good bond, pleasing medium lustre. Has excellent hide, controlled chalking. Resistant to alkali, does not readily blister, fade, or stain. Principally for wood siding and shingles, but also performs well over masonry, stucco, weathered asbestos cement. Modified acrylic latex emulsion vehicle. 13 colors. Also available, in white only, is **USG Latex House Paint**; for use over **IMPERIAL House Primer #894** on new wood.

USG Vinyl Exterior Paint—an economical non-penetrating coating for unglazed masonry, stucco, wood shakes and primed siding. Combines good hiding, weather resistance, true non-fading color, quick drying. Breather-type formulation permits unwanted moisture to escape. Two coats produce best results. Polyvinyl acetate vehicle. 15 colors.

DURACAL Exterior Texture Paint—a thick aggregated coating specially formulated for spray application to old or new wood, metal, concrete surfaces; asbestos siding. Heavy texture hides most surface blemishes. Flexible, mildew and water-resistant when applied as recommended. White and special colors in 100-gal. quantities or more.

USG Porch & Floor Enamel—polyurethane modification provides tough, hard-wearing gloss finish for wood and concrete floors, walls and dados in recreation and laundry rooms, corridors, etc. Resists heavy moisture, heat, stains, grease. Quick-drying, water-repellent, alkali-resistant. Spirit thinned; toluene diisocyanate soya alkyd copolymer vehicle. 5 colors.

USG Latex Floor Paint—a tough, medium sheen finish for interior or exterior floors of previously painted or primed concrete or wood. Fortified with epoxy resins for wear resistance. Alkaline-resistant, quick-drying, normally bonds without etching, but firm, non-dusty surface is mandatory. White and five dark colors, also in tint bases.

CEMENTICO* Masonry Coating—a water-repellent hydraulic cement base paint in powder form, to be mixed with water. For interior and exterior porous masonry surfaces. Excels in hardness, durability, binding qualities, and workability. Two coats recommended; sand may be added for coating to be scrubbed into masonry to make smoother, denser surface. The 10 colors are light-fast, lime-proof, alkali-resistant.

DURA-DRI* Coating—a heavy-bodied aggregated powder, mixed with water, to decorate and protect against mild water penetration through masonry. Applied in two coats alone or over **DURA-STOP* Compound** (see Surface Preparation Products). Four colors; may be overcoated with **CEMENTICO** for greater color range. Special **DURA-DRI Latex Additive** should be specified to improve adhesion, harden surface, and minimize dryout problems. A ready-mixed product, **R/M DURA-DRI Coating**, also available in white only.

3. Wood Stains and Varnishes

USG Wood Stains—pigmented stains with controlled penetration to bring out the natural beauty of wood paneling, furniture, etc. Alkyd solids content permits partial seal of surface, more uniformity of final finish. Non-bleeding, non-fading, minimum grain raise. Versatile in application—may be sprayed, dry brushed, wiped, or used full strength. Available in 7 popular stains for interior use, plus Redwood for interior or exterior; stains may be intermixed for special requirements. Linseed-phenolic resin vehicle.

USG Polyurethane Clear Finish—an interior-exterior pale varnish to meet the highest durability requirements in fine floors, woodwork, exterior doors, boat decks, etc. Gives clear transparent water-resistant finish, easier handling because it is a one-component system. Special vehicle compound of soya oil modified polyurethane provides good adhesion when recoated. Available in Gloss and Satin finishes.

USG Satin Finish and Floor & Trim Varnishes—offer choice of flat or gloss finish, long-wearing and resistant to water and check cracking. Both types are water-white clear and do not alter or discolor the surface appearance. For use on floors, woodwork, doors, furniture. Good body and flow qualities. Linseed soya alkyd vehicle. Should be primed with **USG Sanding Sealer**, which provides ½ fill on open-grain wood to allow one-coat finish results.

USG Acrylic Clear Finish—satin-finish latex coating for interior wood surfaces. Produces a tough transparent coating that protects and beautifies wood grain. Spray-application preferred; fast drying. May be tinted. Modified acrylic latex vehicle.

4. Interior Texture Finishes

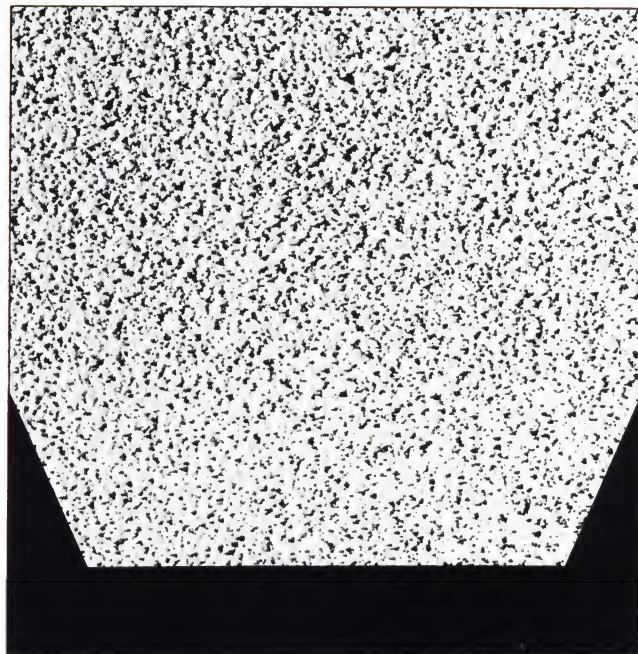
USG Texture I—a ready-to-use latex emulsion paint embodying a fine aggregate to produce a slight sand-finish effect combined with light texture. One coat covers fine cracks, blemishes. Quick-drying, 7 ready-mixed colors.

USG Texture II—flat ripple finish in a latex emulsion. Contains no sharp aggregate, can produce fine textures ranging from "orange peel" effect to smooth rounded stipple. Conceals moderate imperfections, normally requires no sealer. Quick-drying, washable, recoatable. 7 ready-mixed colors.

Other paste textures available: **USG Texture VII**, sanded latex drywall surfacer; **USG Texture VIII**, drywall spray surfacer; **USG Texture IX**, heavy-bodied latex; **USG Texture XI**, latex paste stipple; **USG Sanded Paste Stipple**, alkyd resin compound.

IMPERIAL QT Texture Finish—aggregated powder, produces acoustical finish appearance on ceilings; provides no acoustical correction. Excellent bonding qualities; helps conceal surface defects. Spray-applied in coarse, medium or fine texture. White only. First coat of Pro-Kyd Alkyd Flat Wall Paint recommended.

TEXTONE® Paint—the king of textures, especially adapted to heavy stipples, deep textures and a wide range of applications. For hand application; insoluble and durable. Useful for refinishing plaster surfaces, producing stone or antique effects, stencil work; unequalled for concealing wall blemishes. White



Ceiling spray-finished with IMPERIAL QT Texture

only, but can be tinted with **TEXOLITE®** Standard or coated with most wall paints.

Other powder textures include **USG Texture Paint**, for medium heavy to medium light stipples; **A-B TEX® Texture Paint** and **USG Spray Texture** for fog coats, light stipples and orange-peel textures; **USG Super Texture XII**, spray-applied sand finish for drywall.

Texture Designs: dramatic new concepts in wall texture, with directions for accomplishing various effects with the products above, are presented in a 24-page brochure, "A Time for Texture". Your U.S.G. representative can supply a copy—No. T-641.

5. Surface Preparation Products

TEXOLITE Primer-Sealer—a pigmented latex product for use under any type of paint or enamel, performs better under water-thinned paints than any other sealer. Locks in lime, equalizes suction, lays paper and fiber nap, provides "tooth". White only, but may be tinted with USG Machine Colorants.

SHEETROCK® Sealer—a tung oil resin emulsion sealer for use over gypsum wallboard; also unsurpassed in bridging and filling hairline cracks in plaster. May be used under all interior paints and wallpaper. Equalizes porosity over joint reinforcement and face paper. Especially recommended for kitchens and bathrooms. Should be tinted to shade of finish coat.

USG Latex Primer for Metal—a high-quality primer for clean interior or exterior metal surfaces. Rust-inhibiting pigments provide corrosion resistance and durability. Use at least two coats for exteriors. Light beige color, may be tinted and used as finish coat in exterior application. Acrylic latex vehicle.

USG Alkyd Enamel Undercoat—alkyd base mineral spirit undercoat for interior gloss, semi-gloss or flat oil paints. Not a sealer, but provides low-cost good first coat; fills and equalizes surface to be painted. May be tinted.

USG Penetrating Sealer—a special non-pigmented alkyd resin solution in spirits, designed to condition exterior or in-

(continued on page 6)

SELECTOR GUIDE TO USG PAINT PRODUCTS

construction materials	type of finish desired	special surface treatment		finish product description	thinners	method application	hours drying time		one gal. coverage (sq. ft.)
		new work	redecorating				touch	recoat	
INTERIOR WALLS Block, Brick, or Concrete	Velvet, Smooth Surface	USG Super Block Filler	USG Super Block Filler (opt.)	GRAND PRIZE Latex Wall Paint	NR/w	B1, R1, S1	½	8	450
	Velvet, Natural Texture	TEXOLITE Primer-Sealer	None	GRAND PRIZE Latex Wall Paint	NR/w	B1, R1, S1	½	8	450
	Flat, Smooth Surface	USG Super Block Filler	USG Super Block Filler (opt.)	TEXOLITE Alkyd Latex	NR/w	R1, S1, B2	½	8	400
	Flat, Natural Texture	TEXOLITE Primer-Sealer	None	TEXOLITE Alkyd Latex	NR/w	R1, S1, B2	½	8	400
	Semi-Gloss, Smooth Surface	USG Super Block Filler	TEXOLITE Primer-Sealer	USG Satin-Lustre Enamel	NR/ms	S1, B2, R2	3	24	450-500
	Semi-Gloss, Natural Texture	USG Alkyd Enamel Undercoat	USG Alkyd Enamel Undercoat	USG Satin-Lustre Enamel	NR/ms	S1, B2, R2	3	24	450-500
	Gloss, Smooth Surface	USG Super Block Filler	USG Alkyd Enamel Undercoat	DIAMOND Lustre Enamel	NR/ms	S1, B2, R2	3	24	450
	Gloss, Natural Texture	USG Alkyd Enamel Undercoat	USG Alkyd Enamel Undercoat	DIAMOND Lustre Enamel	NR/ms	B1, R1, S1	3	24	450
	Epoxy Glaze, Smooth	USG Epoxy or Super Block Filler	USG Epoxy or Super Block Filler	USG Epoxy Enamel or ACREPOX Finish	SS/USG	B1, R1, S1	4	8	190-320
	Cement, Smooth	Pre-wet	Clean, pre-wet	CEMENTICO Coating	W	B1, S2	—	24	16-24/lb.
	Cement, Sanded	Pre-wet	Clean, pre-wet	DURA-DRI Coating	W	B	—	24	16-24/lb.
Plaster	Velvet	TEXOLITE Primer-Sealer	None	GRAND PRIZE Latex Wall Paint	NR/w	B1, R1, S1	½	24	450
	Flat	TEXOLITE Primer-Sealer	None	PRO-KYD Alkyd Flat	NR/ms	R1, S1, B1	1	24	400
	Flat	TEXOLITE Primer-Sealer	None	PRO-KYD Alkyd Flat	NR/ms	B1, R1, S1	1	24	400
	Semi-Gloss	TEXOLITE Primer-Sealer	USG Alkyd Enamel Undercoat	USG Satin-Lustre Enamel	NR/ms	S1, B2, R2	3	24	450-500
	Gloss	TEXOLITE Primer-Sealer	USG Alkyd Enamel Undercoat	DIAMOND Lustre Enamel	NR/ms	S1, B2, R2	3	24	450
	Epoxy Glaze	USG Penetrating Sealer	USG Epoxy Enamel or ACREPOX Finish	USG Epoxy Enamel or ACREPOX Finish	SS/USG	S1, B2, R2	4	8	190-320
Gypsum Wallboard	Velvet	SHEETROCK Sealer	SHEETROCK Finish Coat	SHEETROCK Finish Coat	NR/w	B1, R1, S1	½	24	450
		TEXOLITE Primer-Sealer	GRAND PRIZE Paint	GRAND PRIZE Paint	NR/w	B1, R1, S1	½	24	450
	Flat	SHEETROCK Sealer	Prime if needed	PRO-KYD Alkyd Flat	NR/ms	R1, S1, B1	3	24	400
	Semi-Gloss	GRAND-PRIZE Latex Semi-Gloss Enamel	Self-priming	GRAND PRIZE Latex Semi-Gloss Enamel	NR/w	S1, B1, R1	½	24	450
	Gloss	TEXOLITE Primer-Sealer	USG Alkyd Enamel Undercoat	DIAMOND Lustre Enamel	NR/ms	S1, B1, R2	3	24	450
	Epoxy Glaze	USG Epoxy Enamel or ACREPOX Finish	USG Epoxy Enamel or ACREPOX Finish	USG Epoxy Enamel or ACREPOX Finish	SS/USG	S1, B2, R2	4	24	190-320
	Sand Float Texture	None	None	USG Texture I	NR/w	B1, R1	½	24	200
	Orange-peel to Ripple Texture	None	None	USG Texture II	NR/w	B1, R1, S1	1	24	200
	Heavy Stipple or Period Texture	As required	As required	TEXTONE; then GRAND PRIZE Paint	W	B, R, O	1	12	9-36/lb.
	Medium Light to Medium Heavy Texture	Usually none	None	USG Texture Paint; then GRAND PRIZE Paint (also 2 finishes below)	W	B, R, O	1	12	27-54/lb.
	Medium Light to Very Light Text.	Usually none	None	A-B TEX or USG Spray Texture	W	B, R, S, O	1	12	27-54/lb.
	Sand Finish	None	None	USG Texture VII or USG Texture XII (Drywall Surfer)	W	S	1	12	20-35/lb.
Wood	Semi-Gloss	USG Alkyd Enamel Undercoat	USG Alkyd Enamel Undercoat	USG Satin-Lustre Enamel	NR/ms	S1, B1, R2	3	24	450-500
	Gloss	USG Alkyd Enamel Undercoat	USG Alkyd Enamel Undercoat	DIAMOND Lustre Enamel	NR/ms	S1, B1, R1	3	24	450
	Flat	USG Alkyd Enamel Undercoat	None—dull gloss	PRO-KYD Alkyd Flat	NR/ms	R1, S1, B1	1	24	400
	Gloss or Satin Finish Clear	USG Sanding Sealer	USG Sanding Sealer	USG Satin Finish Varnish or USG Polyurethane Clear Finish	NR	B only	2	12	500
Metal (Ferrous)	Flat (Water Thinned)	METAL COAT Iron Oxide Primer	None, if free of rust	GRAND PRIZE Latex Wall Paint	NR/w	B1, S1, R2	½	8	450
	Gloss (Solvent Thinned)	METAL COAT Iron Oxide Primer	None, if free of rust	METAL COAT Enamel	NR/ms	B1, S1, R2	2	24	600
Metal (Bright)	Aluminum	METAL COAT Zinc Chromate Primer	None, if free of rust	USG Aluminum Coating	NR/ms	B1, S1	2	24	600
Metal (Galvanized)	Gloss	METAL COAT Zinc Dust Primer	None, if free of rust	METAL COAT Enamel	NR/ms	B1, S1, R2	2	24	600

NOTES: "Drying Time" and "Coverage" estimates are based on average conditions. Touch = furniture can be returned to living areas.

Abbreviations, Method of Application: B = brush, R = roller, S = spray, T = trowel, O = other; 1, 2, 3 = order of preference. Abbreviations, Thinners: NR/w—Not recommended, use water sparingly; NR/ms—Not recommended, use mineral spirits if needed; SS/USG—Special Solvent manufactured by U.S. Gypsum; W—water per directions.

SELECTOR GUIDE TO USG PAINT PRODUCTS

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construction materials	type of finish desired	special surface treatment		finish product description	thinners	method application	hours		one gal. coverage (sq. ft.)
		new work	redecorating				drying time touch	recoat	
INTERIOR CEILINGS Acoustical Tile or Plaster	Flat (Low Scrub)	None	None	TEXOLITE Standard Paint	NR/w	R1, S1	½	8	350
Gypsum Board	Flat (Med. Scrub)	None, or TEXOLITE Primer-Sealer	None	USG Super Ceiling White	NR/w	B1, R1, S2	½	8	250
	Flat (High Scrub)	TEXOLITE Primer-Sealer	GRAND PRIZE Latex Wall Paint	GRAND PRIZE Latex Ceiling White Paint	NR/w	B1, R1, S1	½	8	450
	Textured	USG Texture I, II, VII, or XII	USG Texture I, II, VII, or XII	Any of above finishes for wallboard	see above	see above	see above	see above	see above
Plaster	Flat	TEXOLITE Primer-Sealer	TEXOLITE Primer-Sealer	PRO-KYD Alkyd Flat	NR/ms	B1, R1, S1	1	24	400
	Flat	TEXOLITE Primer-Sealer	None, or TEXOLITE Primer-Sealer	Any USG latex paint shown for int. walls	—	—	—	—	—
Plaster, Drywall, or Poured Concrete	Rough Texture	PRO-KYD Alkyd Flat	PRO-KYD Alkyd Flat	IMPERIAL QT Texture Finish	W	S only	24	not rec.	—
Poured Concrete	Smooth; Level	None	None	A-B TEX Paint	W	T1	1	12	variable
FLOORS & PATIOS Firm Poured Concrete, Brick, Asph.	Medium Sheen	None, if clean, non-dusting; or USG Penetrating Sealer	None; clean, firm	USG Latex Floor Paint	NR/w	B1, R1	½	24	350
Wood or Concrete	High Sheen	USG Penetrating Sealer; or self-prime	None; clean, firm	USG Porch & Floor Enamel	NR/ms	B1, R1	4	12	400
EXTERIOR SURFACES									
New—Block, Brick, Stucco or Poured Concrete	Low Sheen	2 coats		USG Vinyl Exterior	NR/w	B1, R1, S1	½	8	350
	Medium Lustre	2 coats		USG One-Coat Latex House Paint	NR/w	B1, R1, S1	½	8	350
Old, Light Chalk—Block, Brick, Stucco or Poured Concrete	Low Sheen	Clean, dust-free, wire brush off chalk, 2 coats		USG Vinyl Exterior Paint	NR/w	B1, R1, S1	½	8	350
	Medium Lustre	Clean, dust-free, wire brush off chalk, 2 coats		USG One-Coat Latex House Paint	NR/w	B1, R1, S1	½	8	350
Old, Heavy Chalk—Block, Brick, Stucco or Poured Concrete	Low Sheen or Medium Lustre	Clean, dust-free, wire brush off chalk, apply USG Penetrating Sealer & 2-coat finish		USG Vinyl Exterior Paint	NR/w	B1, R1, S1	½	8	350
	Gloss	USG Penetrating Sealer		IMPERIAL Gloss House Paint	NR/ms	B1, S2	12	48	450
Old or New (unpainted) Block, Brick, Stucco or Poured Concrete	Smooth (Cement)	Clean, free of dust, porous—pre-wet, post-wet		CEMENTICO Coating	W	B1, S1	—	24	16-24 (per lb.)
	Sanded (Cement)	Clean, free of dust, porous—pre-wet, post-wet		DURA-DRI Coating	W	B, T	—	24	16-24
Asbestos Siding	Heavy Texture	Clean, dust free		DURACAL Exterior Texture	NR/ms	S only	12	24	50-60
Wood Surfaces, Gypsum Sheathing	Heavy Texture	Clean, dust free IMPERIAL House Primer, #894 White		DURACAL Exterior Texture	NR/ms	S only	12	24	50-60
Metal	Heavy Texture	Clean, dust free METAL COAT Zinc Chromate Primer		DURACAL Exterior Texture	NR/ms	S only	12	24	50-60
New—Unpainted Wood	Low Lustre	USG Low-Lustre House Paint		USG Low-Lustre House Paint	NR/ms	B only	2	24	450
	Medium Lustre	Dry, clean, apply one coat IMPERIAL House Primer #894, 1 or 2 coats finish paint		USG One-Coat Latex House Paint	NR/w	B1, R1, S1	½	8	400
	Gloss	IMPERIAL House Primer, #894 White		IMPERIAL Gloss House Paint	NR/ms	B1, S1, R2	12	48	450
	Clear Gloss	Prime with USG Wood Stain		USG Polyurethane Clear Finish-Gloss	NR	B1, R1, S1	2	12	500
Repaint—Wood Medium Chalk	Low Lustre	Wipe off chalk and dirt		USG Low-Lustre House Paint	NR/ms	B1, S1, R1	2	24	450
	Medium Lustre	Dust off dirt and cobwebs		USG One-Coat Latex House Paint	NR/w	B1, R1, S1	½	8	400
	Gloss	Wire brush, wipe off chalk and dirt, prime bare spots		IMPERIAL Gloss or One-Coat House Paint	NR/ms	B1, S1, R2	12	48	450
Repaint—Wood Heavy Chalk	Low Lustre	Wire brush, dust and clean		USG Low-Lustre House Paint	NR/ms	B1, S1, R2	2	24	450
	Medium Lustre	Wash with hose and rag, flush with water		USG One-Coat Latex House Paint	NR/w	B1, R1, S1	½	8	400
	Gloss	Wire brush, dust, prime with IMPERIAL House Primer, #894 White		IMPERIAL Gloss House Paint	NR/ms	B1, S1, R2	12	48	450
Pre-Primed Wood Siding	Low Lustre	None		USG Low-Lustre House Paint	NR/ms	B1, S1, R1	2	24	450
	Medium Lustre	None		USG One-Coat Latex House Paint	NR/w	B1, R1, S1	½	8	400
	Gloss	None		IMPERIAL Gloss or One-Coat House Paint	NR/ms	B1, S1, R1	12	48	450
Hardboard Siding	Medium Lustre	IMPERIAL House Primer, #894 White		USG One-Coat Latex House Paint	NR/w	B1, R1, S1	½	8	400
Asphalt	Low Sheen Medium Lustre	Clean, firm, tight backing		USG Vinyl Exterior or Latex House Paint	NR/w	B1, R1, S1	½	8	400
Metal	Gloss	See use of specific primers under "Interior Walls" above		METAL COAT Enamel	NR/ms	B1, S1, R2	2	24	600

(continued from page 3)

terior surfaces which are porous or moderately chalky; forms firm tight base for repainting with any paint except cement bonding type. May be tinted.

USG Latex House Primer #684—for exterior use under USG Latex House and Trim Enamel and USG Latex House Paint. Quick drying; stain and mildew resistant. White only.

IMPERIAL House Primer #894—oil-base primer to prepare new or chalky wood surfaces for USG Latex House Paint or exterior oil paints. Lead-free, blister-resistant, breather-type coating. White only.

USG Super Block Filler—conceals voids, fills pores, gives uniform finish over interior, exterior masonry and other rough surfaces. Not a waterproofing material; may be coated with any paint except cement bonding type—IMPERIAL House Paint or USG Latex House Paint recommended for exteriors. May be tinted. Unaggregated.

DURA-STOP* Compound—a quick-setting hydraulic powder compound used to control water penetration, plug cracks and openings in masonry. Also excellent for anchoring fixture bolts. Natural color, may be overcoated with DURA-DRI* Coating in colors (see Exterior and Masonry Coatings).

6. Special Coatings

USG Epoxy Coatings System protects walls in high-traffic areas of schools, commercial and industrial buildings with economies not previously possible. Provides a glossy ceramic-like appearance of extreme durability and abrasion resistance—highly sanitary and resistant to mildew, fungi, alkali and acids. Non-absorbent, completely seals surface with a non-porous, heat-resistant vapor barrier. Consists of:

USG Epoxy Block Filler fills and levels irregular masonry surfaces, also produces textured effect on smooth surfaces. Spray application usually preferable; neutral color. **USG Block Filler Activator** must be added to produce desired curing and hardness.

Hard-wear surface of USG Epoxy Enamel



USG Epoxy Enamel is applied over USG Epoxy Block Filler, and on smooth surfaces as well; 9 colors. It is blended with **USG Epoxy Enamel Activator** to develop the final surface. **USG Epoxy Solvent** must be used to thin both the Epoxy Enamel and Block Filler for spray application, and for equipment cleaning.

ACREPOX Finish is another two-component system to provide a smooth, tile-like surface over concrete block, masonry, wood, gypsum wallboard, metal or hardboard. Exceptionally durable, it resists abrasion and stains, offers high film build and excellent drying. Coverage exceeds that of USG Epoxy Coatings System. Consists of:

ACREPOX Enamel is a high solids polymer formulation available in six colors. It is mixed with **ACREPOX Enamel Activator** for curing and hardening into a chemical-resistant coating providing maximum performance. For spraying consistency and to aid in equipment cleanup, **ACREPOX Thinner** is used. For thorough sanitary protection of masonry block, two or three coats of ACREPOX Enamel are applied over **USG Super Block Filler**. Over masonry and over ferrous metal surfaces for rust retardance, and where a chemical and alkali-resistant coating is desired, **ACREPOX Epoxy Primer** is used. Prior to use, the primer is mixed with special **ACREPOX Epoxy Primer Catalyst** as the curing and hardening agent.

METAL COAT Enamel—a durable gloss finish, highly weather resistant, for interior and exterior metal surfaces. Spirit-thinned; soya alkyd resin vehicle. Comes in 11 safety colors ideal for equipment identification in plants. Used over any of three rust-retardant special primers: **Zinc Chromate**, for bright metals; **Iron Oxide**, for ferrous metals; **Zinc Dust**, for zinc and galvanized surfaces. **METAL COAT** products also include **USG High Heat-Resistant Aluminum Coating**, formulated to withstand temperatures of up to 1000° F. on interior bright metal surfaces—steam lines, boiler casings, drums, etc.

SHEETROCK Smooth Coating—a new powder compound, mixed with water, spray-applied to drywall or plaster to provide an ideal base for decoration where a smooth, unblemished wall or ceiling is desired. Quick, economical means of obtaining an interior paintable surface.

Industrial Finishes—Shop coats, primers and other special coatings marketed by USG Warren Paint & Color Division.

general painting specifications

I. scope—Unless otherwise indicated, all (describe areas to be prepared and finished) are included.

II. general conditions—During cold weather provide thermostatically controlled heat to maintain (50°) (55°) (60°)F. minimum temperature until building is occupied. Open flame, unvented burners shall not be used to provide heat. Adequate ventilation shall be provided at all times for proper drying. (For exterior work, specify minimum application temperature.)

III. materials

- Deliver in original unopened containers.
- Store to protect from damage by elements and tampering.
- Use all materials in strict accordance with manufacturer's directions as furnished at time of material delivery.
- (Specify materials from product descriptions and Selector Guide in this catalog.)

IV. surface preparation

- Before painting prepare surfaces as required in product directions. The base surface must be sound, firm and dry, clean and free of dust, dirt, grease or other foreign material. (After following preparation steps, specify surface treatment from Selector Guide,

pages 4 and 5; specify application according to manufacturer's directions.)

b. Interior plaster surfaces—on *old plastered walls*, fill all hairline cracks with TEXOLITE® Spackling Putty. Fill larger cracks with RED TOP® Patching Plaster. Sand rough edges and allow time for spackled and filled areas to dry. Dull the glossy areas by rubbing lightly with fine steel wool or washing with a strong washing powder solution followed by a thorough rinse with clean water. Allow to dry before proceeding. Touch up the spackled and patched cracks and areas with SHEETROCK® Sealer. Allow to dry. Follow with a brushed-on coat of SHEETROCK Sealer over all areas. In *newly plastered surfaces*, treat cracks and gouges in the same manner as for old walls. Apply a coat of TEXOLITE Primer-Sealer. When reinforcement of the white coat is needed, use USG Penetrating Sealer.

c. IMPERIAL veneer plaster surfaces—proper sealing of surface is essential. Surface must be sound and dry as outlined above; repair minor imperfections with TEXOLITE Paste Spackling Compound or USG Ready-Mixed Joint Compound-All Purpose. When dry, apply one or more coats of TEXOLITE Primer-Sealer or (if surface is weak, friable or chalky) apply SHEETROCK Sealer. Tint the primer-sealer coat to aid in detection and repair of surface defects; seal any patches or fills revealed after first primer-sealer application. Either water-thinned or solvent-thinned flats or enamels may be used for finish coats.

d. Interior gypsum wallboard surfaces—prepare joints and nail heads with (USG) (PERF-A-TAPE®) (DURABOND®) Joint Compound (see Specifications in U.S.G. Folder f-1881).

e. Interior wood surfaces (except floors)—in new wood not previously painted, sand smooth and touch up knots, sap streaks and pitch spots with shellac.

f. Interior metal surfaces—remove grease, oil and plaster splatterings, rust and mill scale.

g. Other interior and exterior surfaces—prepare according to directions of surface treatment or finish product.

V. application

a. Apply according to product directions (except where you may wish to specify in detail on specialty applications shown below).

b. SHEETROCK W/R Gypsum Wallboard—(see Specifications in U.S.G. Folder f-1871).

c. Predecorated Gypsum Panels—for additional surface protection of predecorated TEXTONE Gypsum Panels, apply (one) (two) coat(s) of USG Polyurethane Clear Finish (Gloss) (Satin).

d. Texture and Epoxy Finishes, Wood Stains and Varnishes—(select finish and product desired from Selector Guide, pages 4 and 5). Upon request, the contractor shall provide sample panels coated with the product specified, which, when approved, shall be the standards of finish to be provided on this work.

e. IMPERIAL QT Texture Finish

1. Unless otherwise indicated, all interior gypsum wallboard or poured concrete ceilings are included.

2. All interior concrete ceilings shall be treated to remove form oils and greasy deposits. New concrete, including any patches or repairs, shall have aged at least 60 days before applying finish. Any high plane differences resulting from forms or other causes shall be ground down to same level as adjacent area. If additional filling or leveling is required, this shall be accomplished by using DURABOND® Joint Compound, COVER COAT® Compound or USG Super Block Filler—as manufactured by United States Gypsum Company, applied in as many coats as needed to provide a hollow-free, hump-free, crack-free fill with no edge joining that will show through final decoration.

3. In areas which will be exposed to sharp, angular lighting, special care must be exercised to provide a smooth plane base that is free of surface irregularities.

4. In drywall construction, treat joints and nail heads with joint system as manufactured by the United States Gypsum Company, following manufacturer's instructions. Scratches or scuffs in drywall surface must be smoothed and spackled.

5. Full coat of PRO-KYD Alkyd Flat Wall Paint shall be applied, followed, when dry, with IMPERIAL QT Texture Finish mixed on the job in strict accordance with the manufacturer's printed directions.

6. To be applied by spray only at a rate not to exceed 8 sq. ft. per lb. and in accordance with the directions printed on the container. The material is to be applied in such a fashion that it will blend uniformly, that there are full uniform coatings and

that there shall be no starved spots or other evidence of thin application. The texture shall be uniform and free of application patterns. The spray equipment shall be of such size and type as to provide acceptable results.

f. USG Epoxy Coatings System

Note to architect: Application of USG Epoxy Enamel at a rate between 300-375 sq. ft. per activated gallon provides a dry film thickness of approximately 2-2½ mils per coat applied. When greater coating thickness is desired, specify additional coats to attain the film thickness wanted. On masonry, cement block and similar rough surfaces, USG Epoxy Block Filler develops a film thickness approaching 8 to 10 mils when applied at a rate between 60 and 100 sq. ft. per activated gallon.

1. As indicated in the respective sections, gypsum wallboard, concrete and cinder blocks, poured concrete walls and ceilings, plaster, asbestos board, masonry, hardboard, plywood interior and exterior surfaces shall be coated as specified.

2. Application shall be attempted only when the interior temperature can be continually maintained in a uniform range above 50°F. for a minimum of 24 hours before, during and after application, and when exterior surfaces and air temperature will remain above 50°F. Strong drafts are to be avoided during application, but adequate ventilation must be provided during application, and for at least 24 hours after application is completed. When there has been rain or snow for several days before, during and after application, then the period of ventilation shall be extended to at least 72 hours after application.

3. *Cement Block and Brick*—remove protruding mortar droppings, splatters. Cleanly tool or wipe mortar joints smooth and flush. Repair blemishes. (System A or D below.)

4. *Concrete Floors and Swimming Pools*—remove all dirt and grease. New or aged concrete should be etched with a 15% to 20% solution Muriatic Acid. Mop on, let stand for 20 minutes, thoroughly rinse with 5% to 10% solution household ammonia with water, and allow to dry. (System A or D below.)

5. *Metal*—completely remove all scale, rust, oil and grease by wire brushing or sand blasting as required to provide a clean surface. Then apply a full, uniform coat of ACREPOX Epoxy Primer to provide corrosion and chemical resistance. Allow prime coat to dry thoroughly before proceeding with next application. (System A below—one coat only if appearance is satisfactory.)

6. *Gypsum Wallboard*—joints and nailhead treatment must be thoroughly dry. Remove all dust, other foreign matter from entire surface. (System A, B, C or D below.)

7. *Hardboards, Cement and Asbestos Boards*—surfaces must be clean and dry. (System A, C or D below for cement, System A, B or D for hardboard.)

8. *Plaster-Lime Putty*—must be clean, dry, firm, free of dust or chalk and in paintable condition. On unpainted surfaces meeting these conditions apply one coat of USG Penetrating Sealer. After this has dried the prescribed time, proceed with decoration. (System C below.)

9. *Wood*—sand smooth, dust free. (System A, C or D below—sand after first coat if rough.)

10. *Previously Painted Surfaces*—after proper cleaning, test USG Epoxy Enamel on small area to determine compatibility with old coating. No lifting of old paint shall occur. If lifting appears, remove old coating and treat as new surface (otherwise, use System A or D below.)

11. Over gypsum wallboard surfaces prepared as above and completely dried, apply USG Epoxy Enamel by means of the following system:

System A—Apply one coat of USG Epoxy Enamel used as prime coat followed when cured by one or more additional coats of Epoxy Enamel.

System B—Apply one coat of TEXOLITE Primer-Sealer, followed when dry by one or more coats of USG Epoxy Enamel.

System C—(cases where additional substrate protection or hardness is desired). Apply one coat of USG Penetrating Sealer followed when dry by one or more coats of USG Epoxy Enamel.

12. Over cement block and brick surfaces, apply as follows:

System D—Fill surface with one or more applications of USG Block Filler followed when dry with one or more coats of USG Epoxy Enamel, followed if desired with spatter coat of a complementary color.

g. ACREPOX Finish

Note to architect: Application of ACREPOX Enamel at a rate between 350-400 sq. ft. per blended gallon provides a dry film thick-

ness of approximately 5 mils per coat applied. Over masonry and ferrous metal (excluding aluminum), ACREPOX Epoxy Primer should be used at dry film thickness of about 2-3 mils, developed by application of 275-400 sq. ft. per blended gallon. On masonry, cement block and similar rough surfaces, USG Super Block Filler is used as a base coat under ACREPOX Enamel; when each coat of enamel is thereafter applied at a rate of 350-400 sq. ft. per blended gallon, a wet film thickness of 4 to 5 mils is developed. For tested performance characteristics of ACREPOX Finish, request U.S.G. Data Sheet T-1113.

1. (See Sections 1 and 2 under (f.) above.)

2. *Concrete, Concrete Block and Brick*—remove protruding mortar, droppings, spatters, repair blemishes. Prime with blended ACREPOX Epoxy Primer or apply USG Super Block Filler in one or two full coats. Follow with ACREPOX Enamel in two, or preferably three, coats. Allow drying period between each coat per manufacturer's directions.

3. *Metal*—sand blast or wire brush to bright appearance, remove all oil and grease. Prime rust-free metal with ACREPOX Epoxy Primer. Follow with activated ACREPOX Enamel.

4. *Gypsum Wallboard*—joint and nailhead treatments must be thoroughly dry. Remove all dust, other foreign matter. Follow with two coats of ACREPOX Enamel; allow adequate curing time between coats. (USG Vinyl Sealer or Penetrating Sealer may be used as first coat.)

5. *Hardboards, Cement-Asbestos Boards*—surfaces must be clean and dry prior to application of ACREPOX Enamel.

6. *Plaster*—surfaces must be clean and dry. Meter reading must show not more than 6% residual moisture. Apply USG Penetrating Sealer on unpainted lime putty surfaces; follow with ACREPOX Enamel.

7. *Wood*—sand smooth, dust clean prior to application of ACREPOX Enamel. Thin first coat slightly with ACREPOX Thinner; sand lightly between coats.

8. *Previously Painted Surfaces*—after cleaning, test blended ACREPOX Enamel on small area to determine compatibility with old coating. No lifting of old paint shall occur. If lifting appears, remove old coating and treat as new surface prior to application of ACREPOX Enamel.

9. *Smooth, Non-porous Surfaces*—apply two or more coats of ACREPOX Enamel, allowing drying period between coats of at least 48 hours.

h. Metal Surfaces

1. Flow on METAL COAT (Iron Oxide) (Zinc Chromate) (Zinc Dust) Primer in full uniform coat. Provide ample circulating ventilation during and after application.

2. Apply METAL COAT Enamel by (brush) (roller) (spray).

3. Apply 2 coats of USG High Heat-Resisting Aluminum Coating by (brush) (spray) to approx. 1 mil per coat dry film thickness. Apply paint only when surface temperature is below 140°F. Use respirator; provide adequate ventilation during and after application.

i. *Acoustical Plasters*—painting of AUDICOTE* or HI-LITE* Acoustical Plasters shall proceed only after surfaces have been properly vacuum cleaned. For the first coat, TEXOLITE Standard Paint, in a white or light tint as specified, shall be mixed 1:1 with water and spray-applied. (For the second coat, mixture shall be 1 part TEXOLITE Standard Paint to 2 parts water.) Standard spray atomizing equipment shall be used with sufficient fluid and pressure for light, uniform coverage. Care shall be taken to avoid piling up paint at laps, joinings, or elsewhere. Paint shall be "dusted" in alternating fashion from both sides of raised texture.

j. *Radiant Heat Ceilings*—after sealer coat of TEXOLITE Primer-Sealer has dried, () finish coats of GRAND PRIZE Latex Wall Paint shall be applied. With installations employing RED TOP* Radiant Heat Plaster, heating cable shall be de-energized for at least 6 hours before each finish coat is applied, and entire ceiling shall have a uniform temperature.

k. *Poured Gypsum Roof Decks*—in finishing the underside of USG formboards supporting poured gypsum roof decks, a breathing type paint film and fortification against mildew are required. On all formboard types except mineral fiber and asbestos-cement, apply TEXOLITE Alkyd Latex Paint, reinforced by job-site addition of 1/2 oz. Nuodex Super Ad-It inhibitor per gal. of paint. On mineral fiber types, apply 1 or 2 coats PRO-KYD Alkyd Flat Wall Paint with 1/4 oz. Nuodex Super Ad-It per gal. of paint. On asbestos-cement formboard, apply USG Latex House Paint; additional inhibitors not required.

l. *Precast Gypsum Roof Decks*—before painting, USG Metal Edge Gypsum Plank must be dry and galvanized edging must be free of grease or oil. Paint edging with METAL COAT Zinc Chromate Primer; seal gypsum surfaces with SHEETROCK Sealer. Allow metal primer and sealer to dry. Apply 1 or 2 coats GRAND PRIZE Latex Wall Paint or PRO-KYD Alkyd Flat Wall Paint. If it is necessary to paint before plank is dry, prime metal edging as above, paint edging and gypsum with TEXOLITE Standard casein paint reinforced with 1 1/2-oz. Dowicide "G" fungicide per gallon of paste.

m. *Water Storage Tanks*—in coating inside of tanks, surfaces must be free of rust, grease, oil, grit, or any foreign matter; bright metal should be sand-blasted. Apply one coat ACREPOX Epoxy Primer to wet film thickness of 4 to 5 mils. Then apply two coats of USG Epoxy Enamel to wet film thickness of 4 to 5 mils, with overnight drying between all coats. Apply to full, complete, continuous film. Before immersion, allow minimum of 7 days curing time if temperature is above 70°F., or 14 days if between 50°F. and 70°F.

VI. *Federal specification paints and others*—ask your U.S.G. representative for recommendations, color samples, etc.

*TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (paint and joint treatment products, gypsum roof plank and formboard); TEXOLITE, GRAND PRIZE, DIAMOND, PRO-KYD, CEMENTICO, DURA-DRI, DURA-STOP, DURACAL, IMPERIAL, TEXTONE, A-B TEX, METAL COAT, ACREPOX, ADD-A-FLECK (paint products); SHEETROCK (gypsum wallboard, compound, sealer); PERF-A-TAPE and DURABOND (joint treatment); RED TOP, IMPERIAL, HI-LITE, AUDICOTE (plaster products); COVER COAT (finishing compound).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY and any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

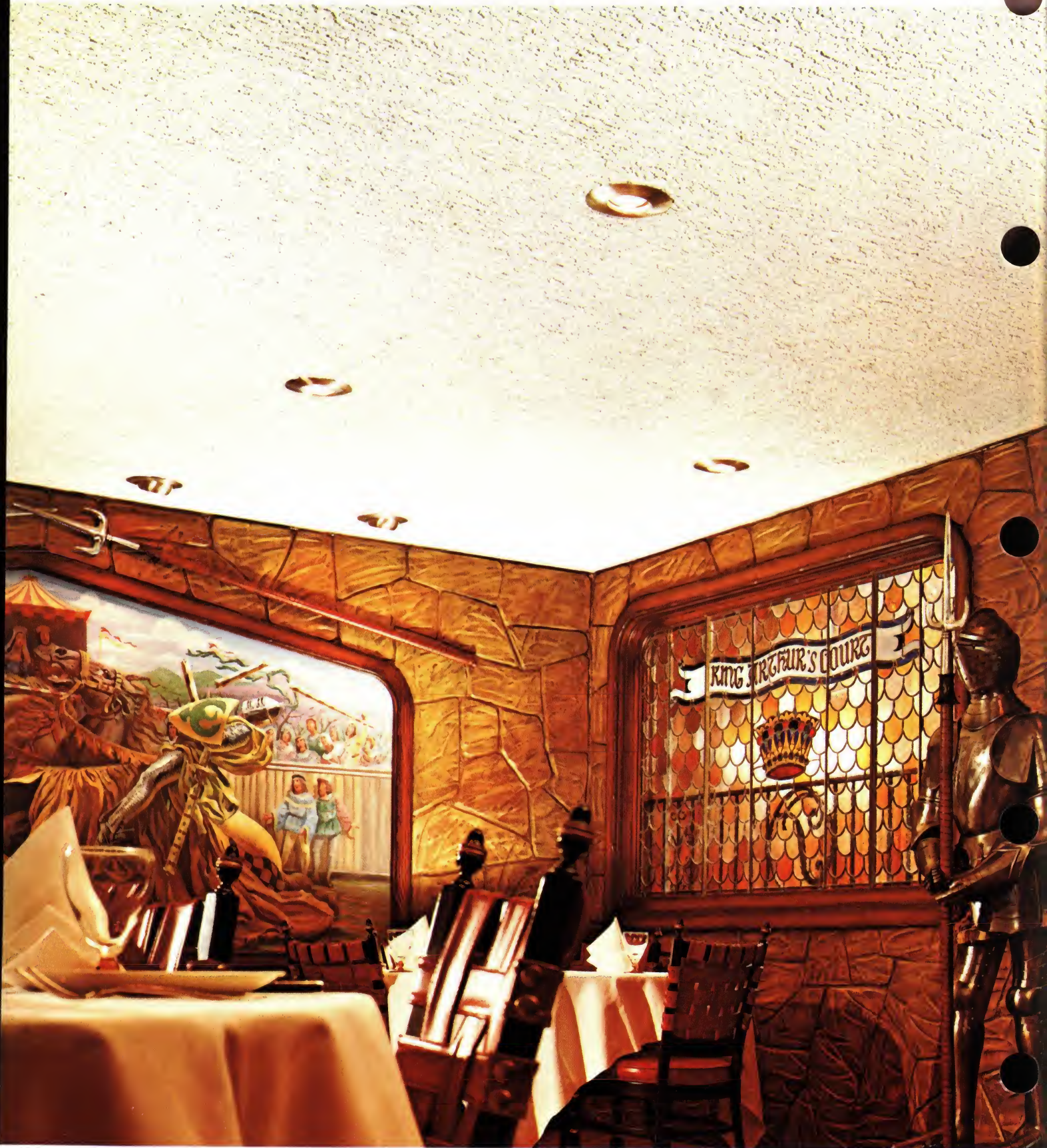
U.S.G. SALES OFFICES, PAINT DIVISION: **GEORGIA:** Atlanta, 261-3180 • **ILLINOIS:** Chicago, 321-5862 • **NEW YORK:** New York City, 935-4430 • **OHIO:** Cleveland Heights, 932-5036 • **TENNESSEE:** Nashville, 292-6655 • **TEXAS:** Dallas, 351-5386.



product folder

Concealed suspension of Glacier ACOUSTONE Tile gives monolithic appearance to this Old English setting

TOWER STEAK HOUSE, Mountainside, N.J.



USG® sound control products

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U.S.G.'s Concealed Accessible Z-Spline suspension gives instant access to mechanical services above the ceiling



description and utility

Whatever your ceiling requirements—sound absorption or attenuation, fire protection, accessibility, heating and cooling—these sound control products, the industry's finest, will fulfill the function.

The tremendous broadening of architectural needs in sound control has been anticipated by United States Gypsum. Through continual research and development, the product line offered to you today is the most complete ever—ceiling surfaces of classic design and functional beauty in a range of textures and patterns to suit virtually any room and any condition.

The wide scope of types and sizes is presented on the next two pages. Detailed descriptions and illustrations of individual products follow the tables. Total-performance suspension systems and fire-rated designs are covered in separate U.S.G. System Folders: b-1551, ACOUSTONE Tile Suspension Systems; b-1541, AURATONE Panel Suspension Systems; and b-1561, AIRSON Air Distribution System. Another popular method of ceiling sound control, acoustical plaster, is treated in U.S.G. Folder f-1851.

U.S.G. Sound Control Products are sold installed, on a contract basis by U.S.G. recommended Acoustical Contractors. The contractor furnishes all materials and labor necessary to complete the job in accordance with the specifications in this folder.

Critical lighting conditions for acoustical ceilings are often created by modern architectural practice, particularly the use of high light fixtures, windows and cove lights. It is important to visualize the final room lighting when selecting a tile or suspension system. In some instances, beveled materials or exposed suspension often produce the most satisfactory results. Complementary components designed as part of an integrated system give assurance of fine appearance and reliable performance. Your U.S.G. sales representative will be happy to assist in your sound control designs.

types and sizes

ACOUSTONE Tile and Panels, prestige sound control materials, are molded mineral fiber units in sizes from 12"x12" to 24"x48" as shown below (as well as any size that can be cut from 24"x36" or 24"x48" molds on special order). ACOUSTONE is provided in nine standard patterns, with special types for fire, sound and special conditions. The thermal resistance (R) is 2.12 (Installed Resistance of ACOUSTONE db is 4.20 upward and 11.08 downward).

product	pattern	nom. thickness	module size (in.)	edge	installation	weight psf
Tile						
ACOUSTONE	"F" Fissured	¾"	12x12	SS BS BA	adhesive, conc. Z, conc. acc.	1.30
			12x24	SS BS BA BZ SZ	conc. Z, conc. acc., E-Z-S	1.30
			12x36, 12x48	SS BS BZ SZ	conc. Z, E-Z-S	1.30
	Glacier	¾"	12x12	SS	adhesive, conc. Z	1.40
	Finesse	¾"	12x24	SS SZ	conc. Z, E-Z-S	1.40
			12x12	BS BA	adhesive, conc. Z, conc. acc.	1.40
			12x24	BS BA BZ	conc. Z, conc. acc., E-Z-S	1.40
	Domino	¾"	12x36, 12x48	BS BZ	conc. Z, E-Z-S	1.40
			12x12	SS	adhesive, conc. Z	1.39
ACOUSTONE db (foil-backed)	Fissured	¾"	12x12	SS BS BA	conc. Z, conc. acc.	1.30
			12x24	SS BS BA BZ SZ	conc. Z, conc. acc., E-Z-S	1.30
			12x36, 12x48	SS BS BZ SZ	conc. Z, E-Z-S	1.30
	Glacier	¾"	12x24	BS BA	conc. Z, conc. acc., E-Z-S	1.30
			12x12	SS	conc. Z	1.60
			12x24	SS SZ	conc. Z, E-Z-S	1.60
	Finesse	¾"	24x24	SS	conc. Z	1.60
			12x12	BS BA	conc. Z, conc. acc.	1.30
			12x24	BS BA BZ	conc. Z, E-Z-S	1.30
			12x36, 12x48	BS BZ	conc. Z, E-Z-S	1.30
			24x24	BS BA	conc. Z, conc. acc., E-Z-S	1.30
ACOUSTONE 90	Fissured, Glacier, Finesse	¾"	12x12	SS BS (1)	conc. Z	1.30
ACOUSTONE 120	Fissured, Glacier, Finesse	¾"	12x12	SS BS (1)	conc. Z	1.30
ACOUSTONE 180	Fissured, Finesse	¾"	12x12	SS BS	conc. Z	1.30
AIRSON ACOUSTONE (A-2, A-5 and unslotted)	Fissured	¾"	12x12	SS BS	conc. Z	1.30
			12x24	SS BS BZ SZ	conc. Z, E-Z-S	1.30
			24x24	BS	conc. Z	1.30
	120 Fissured Glacier	¾"	12x12	SS BS	conc. Z	1.30
			12x24	SS	conc. Z	1.45
			24x24	SS SZ	conc. Z, E-Z-S	1.45
	120 Glacier	¾"	12x12	SS	conc. Z	1.45
MOTIF'D ACOUSTONE	Georgian, Striated, Galaxy, Fantasia, Interline	¾"	12x12	SS	adhesive, conc. Z	1.35
Panels						
ACOUSTONE db (foil-backed) (2)	Fissured, Glacier, Finesse	¾"	24x24, 24x48	tr., s-l	exposed grid	1.30-1.40
ACOUSTONE 120 (2)	Fissured, Glacier, Finesse	¾"	24x24	tr., s-l	exposed grid	1.30-1.40

ACOUSTONE Space Units are molded mineral fiber sound absorbers for surface-mounting on ceilings and walls where exceptional absorption and special treatment are required. Space Units are provided in 3 patterns and a number of suspension methods can be used.

ACOUSTONE Space Units	Finesse, Striated, Glacier	2"	12x12	squared	adhesive, clip mounting	3.85
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AURATONE Tile and Panels are water-felted mineral fiber acoustical products marketed in eight patterns and sizes of 12"x12" to 30"x60". Thermal resistance (R) is 1.47(½"), 1.85(¾") and 2.18(¾") for regular AURATONE materials and 1.85(¾") and 2.14(¾") for AURATONE FIRECODE materials.

Panels						
AURATONE	Pin-Perf., Fissured, Random, Snowdrift, Micro-Perf., Texture 093, Texture 210 Fissured	¾"	24x24, 24x36 24x48, 24x60	tr.	exp. grid	1.15
		¾"	(3)			
		¾"	24x24, 24x48	s-l	exp. grid	1.37 1.15
AURATONE FIRECODE	Pin-Perf., Fissured Random, Snowdrift, Micro-Perf.	¾"	24x24, 24x48, 30x60	tr.	exp. grid	1.37

product	pattern	thick- ness	module size (in.)	edge	installation	weight psf
AIRSON AURATONE (A-2, A-5, unslotted)	Pin-Perf., Fissured, Snowdrift, Micro-Perf.	5/8"	24x24, 24x36, 24x48, 24x60	tr.	exp. grid	1.15
AIRSON AURATONE FIRECODE (A-2, A-5, unslotted)	Pin-Perf., Fissured, Snowdrift, Micro-Perf.	5/8"	24x24, 24x48, 30x60	tr.	exp. grid	1.37
AURATONE FIRECODE HF Tile	Pin-Perf., Fissured	3/4"	24x24, 24x48	tr.	exp. grid	1.40
AURATONE	Pin-Perf., Random, Fissured	1/2"	12x12	BB	adhesive	.80
			12x24	SF	adhesive staple or nail	.80
	Pin-Perf., Random, Snowdrift	5/8"	12x12	BS	adhesive, conc. Z	.90
			12x24	BS	conc. acc.	.90
			24x24	BS BA	conc. Z, conc. acc.	.90
	Pin-Perf., Random, Fissured, Snowdrift	3/4"	12x12	BS	adhesive, conc. Z	1.10
			12x24	BZ	E-Z-S	1.10
AURATONE FIRECODE Tile	Pin-Perf., Fissured, Random, Snowdrift	5/8"	12x12	T&GB	conc. Z	1.15
			24x24	BS	conc. acc. grid	1.15
	Non-directional Fissured	3/4"	12x12	T&GB (4)	conc. Z	1.40
		3/4"	12x12, 12x24	BS	conc. Z, conc. acc.	1.10
AIRSON AURATONE FIRECODE Tile (A-2, A-5 and unslotted)	Pin-Perf., Fissured	5/8"	24x24	BS	conc. acc. grid	1.15
		3/4"	12x12	T&GB (4)	conc. Z	1.40
	Non-directional Fissured	3/4"	12x12, 12x24	BS	conc. Z, conc. acc.	1.10

AUDITONE Acoustical Tile and Panels are economical wood fiber, water-felted acoustical products offered in six patterns and sizes of 12"x12" to 24"x48". Thermal resistance (R) is 1.32 for 1/2" thicknesses and 1.96 for 3/4" thicknesses. They are designed for direct attachment or lay-in installation.

AUDITONE Tile	Reg. Perf., Random, Plain, Pin-Perf.	1/2"	12x12		adhesive	.80
	Fissured	1/2"	12x24 (5)		staple	.80
			12x12, 12x24	SF BS	adhesive, conc. Z,	.80
	Plain, Reg. Perf., Pin-Perf., Random	3/4"	12x12	BB BS	staple or nail	1.14
AUDITONE Panels	Plain, Snowdrift, Fissured	1/2"	24x24, 24x48	tr.	exp. grid	.80

PERFATONE Acoustical Units are perforated metal pans containing mineral fiber pads for sound absorption. They are produced in sizes of 12"x12" to 12"x48" in four perforation patterns. They are designed for snap-in installation in indirect-hung T-bar suspension. Thermal resistance (R) of the pad only is 4.75.

PERFATONE Acoustical Units (steel or aluminum)	Perf. (diagonal, square, needlepoint), Unperforated	1 1/16"	12x12, 12x24, 12x36, 12x48 (5)	bev. (6)	metal T-bar suspension	.52-1.14
Fire-Rated PERFATONE Acoustical Units (steel only)	Perf., (diagonal, random)	2 13/16"	12x24	bev. (6)	metal T-bar suspension	1.10

USG Asbestos Board is produced in 24"x24" and 24"x48" sizes, for lay-in installation in exposed grid suspensions. While sound absorption of panels alone is negligible, they are effective when perforated and backed by sound-absorbing material.

USG Asbestos Board	Perf., Unperforated	3/16"	24x24, 24x48	tr., bev.	exposed grid, nail or screw	1.50-1.75
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HI-LITE Ceiling Panels when used in applications where sound absorption is secondary, exhibit excellent fire resistance and light reflectance. Produced 24"x24" and 24"x48" for lay-in application.

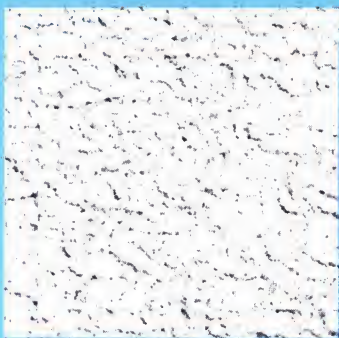
HI-LITE Mineral Fiber Ceiling Panels	Perforated	5/8"	24x24, 24x48	tr.	exposed grid	1.00
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NOTE: (1) Glacier pattern not available with beveled edge. (2) Also available in AIRSON A-2, A-5 and unslotted. (3) Other sizes available on special order. (4) Fissured also available T&G sq. (5) Scored to represent 12"x12" tile. (6) Designed for snap-in attachment to T-bars.

Abbreviations: SS—square edge, standard kerf; SZ—square edge, Z-spline kerf; BS—beveled edge, standard kerf; BA—beveled edge, accessible kerf; BZ—beveled edge, Z-spline kerf; tr.—trimmed edge (square), no kerf; s-l—edge rabbeted for shadow line; BB—butt beveled edge, no kerf; SF—staple flange; T&GB—beveled edge, tongue and groove; bev.—beveled edge, no kerf; conc. Z—concealed Z-spline suspension, indirect hung; conc. acc.—concealed accessible suspension, indirect hung; E-Z-S—exposed Z-spline suspension, indirect hung; exp. grid—exposed grid suspension, direct hung; psf—pounds per square foot; perf.—perforated.



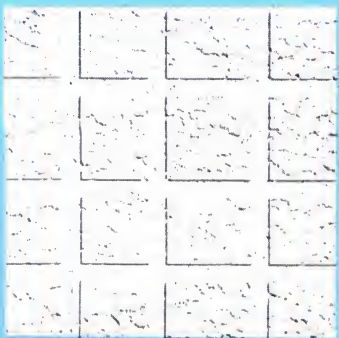
FISSURED



GLACIER



FINESSE



DOMINO

ACOUSTONE Mineral Acoustical Tile and Panels ... prestige products for creative ceiling designs

ACOUSTONE, with its eloquent patterns and textures, sets the industry standard for beauty and efficient sound attenuation and absorption. Now, more than ever before, its range of sizes, edge treatments and suspension methods offer complete flexibility of concept to the designer.

Designed to absorb sound originating within a room, ACOUSTONE is manufactured by binding mineral fibers into a lightweight, highly decorative product. The fissured surface closely resembles that of travertine marble with no two tile textures exactly alike, adding interest and avoiding monotony of appearance.

ACOUSTONE Mineral Acoustical Tile and Panels are manufactured under rigid tolerances to produce closely controlled dimensions. All types have been tested in accordance with AMA 1-II attenuation and ASTM C423 absorption procedures—data reported on pages 28 to 30.

Fire and Sound Ratings—Incombustible (ASTM E84 test procedure); Type III Class 25 (I) (Federal Spec. SS-S-118a). Fire hazard classification: flame spread 15, fuel contributed 15, smoke developed 0 to 15. See U.S.G. Construction Selector, Section B, and System Folder b-1551 for assemblies with fire ratings up to 3 hrs., estimated STC up to 44.

Maintenance—The smooth, painted finish of white or ivory resists soiling and limits objectionable air travel (breathing) through face of tile. Standard finish is washable vinyl coating, factory applied and heat cured. It contains 18% to 20% vinyl solids based on dry coating weight. Coating withstands 300 scrub cycles with no removal in the Gardner straight-line washability machine with nylon brush and clear water. Also see ACOUSTONE PC, page 12.

Tile and Panels may be washed with damp sponge or cleaned with a vacuum cleaner, chemical rubber sponge (used dry), or putty or paste-type wallpaper cleaner.

Roll, brush or spray with a non-bridging paint (TEXOLITE Aklyd Latex or equal). U.S. Department of Commerce Research Paper RP 1298 shows no appreciable NRC loss for ACOUSTONE "F" (type) Tile brush painted with five coats.

limitations

Installation of ACOUSTONE Tile or Panels should not begin until residual moisture from plaster, concrete or terrazzo work is dissipated. ACOUSTONE is designed for installation and use under standard occupancy conditions of 50°F to 85°F at no more than 80% RH.

ACOUSTONE Tile or Panels should not be used: (a) where continuously exposed to high humidity; (b) below wainscot height or where exposed to impact, abrasion or tampering.

"F" Fissured ...

a bold—yet orderly—statement of classic beauty

The rich fissured surface resembling travertine marble, subtly planed to maintain dignity, makes "F" Fissured (right) still the most popular pattern of ACOUSTONE Tile and Panels. The fissure is naturally produced, thus no two pieces are exactly alike yet all are of the same family.

TELEPHONES





Glacier ACOUSTONE Tile in concealed Z-spline system

BANK OF COMMERCE, Ft. Worth, Tex.

Interior Designer: FRANK H. GUSE ASSOC.

Glacier . . .
rugged beauty for monolithic appearance

The heavily fissured, rough surface of Glacier ACOUSTONE Tile and Panels accounts for their fast-growing popularity in contemporary architecture. The screeded, unplanned finish provides a treatment generally available only in job-applied plaster construction. Edge joints (and air distribution slots) are well concealed by the rich texture.

Finesse . . .
light, subtle fissure for delicate, formal settings

Sophisticated environments suggest the finesse of Finesse ACOUSTONE Tile or Panels. The fissures are the same natural, non-repeating pattern as "F" Fissured, but much smaller and more subtle. The surface is finely planed to tailor the unit; the beveled edges hide any suspension irregularities.

Domino . . .
striking frankness in small scale

Routed to simulate nine mini-tile in each 12"x12" unit, Domino ACOUSTONE Tile draws attention to the ceiling with its striking pattern. Ideally suited to rooms of smaller scale, Domino is refreshingly honest about being tile. Fissures are of the same scale and type as those of "F" Fissured.

USG® sound control products

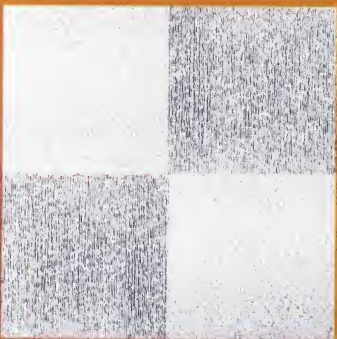
Striking Domino ACOUSTONE Tile complements interesting broadcasting station lobby
KIRO BROADCASTING HOUSE, Seattle, Wash. • Architect: FRED BASSETTI & CO., AIA



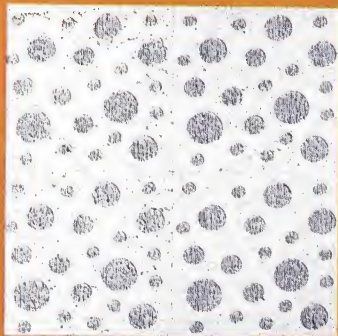
MOTIF'D ACOUSTONE patterns



GEORGIAN



STRIATED



GALAXY



FANTASIA



INTERLINE

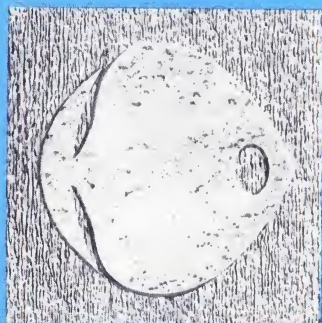
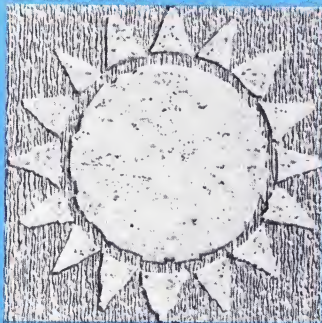
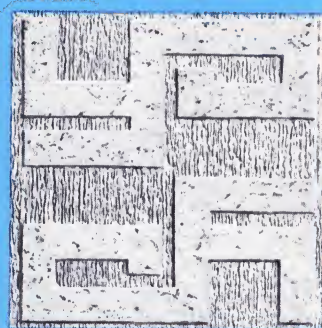
MOTIF'D ACOUSTONE Mineral Acoustical Tile . . . ultimate in distinctive appearance

These fascinating patterns are produced by altering ACOUSTONE Tile by a process that permanently etches a bas relief design into the surface. The patterns are accented by the varying shadows caused by directional influence of the lighting, rather than by applied color. Each square of four 12"x12" tiles completes the basic pattern. Now offered in five striking patterns, MOTIF'D ACOUSTONE provides NRC ranges up to .75-.85 and Class a light reflectance. All patterns are also available in ACOUSTONE db and Fire-Rated ACOUSTONE.

Custom MOTIF'D ACOUSTONE Tile . . . designed by you for personalized effect

Almost any custom pattern desired—company logograms, function designs, institutional symbols—can be produced with the same deep etching and by the same methods as in MOTIF'D ACOUSTONE. Designs may be repeated over the entire ceiling or intermixed with standard patterns of ACOUSTONE Tile to achieve the desired results. The additional cost of Custom MOTIF'd is negligible—U.S.G. Sales Engineers can advise feasibility and complete ordering details.

Custom MOTIF'D ACOUSTONE designs



ACOUSTONE Tile, effectively used in large dining room, combines grouped Georgian MOTIF'D fields bordered by Fissured pattern
WAMPANOAG CLUB, West Hartford, Conn.

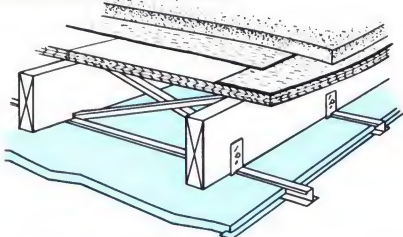


Special-Function ACOUSTONE Tile and Panels ... with desired fire, sound, surface features

Fire-Rated ACOUSTONE, in Fissured, Glacier or MOTIF'D patterns, provides 1, 1½", 2 and 3-hr. (Fissured or MOTIF'D only) fire protection while offering the same high sound absorption, light reflection and fissured beauty of regular ACOUSTONE Tile. UL label service is provided for these designs:

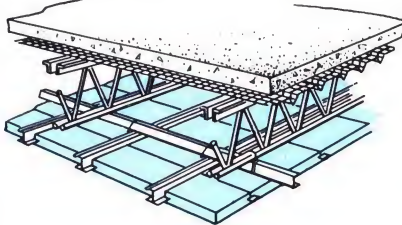
UL Design 15—1 hr.

ACOUSTONE 90 Tile, 12" x 12", Fissured, Glacier or MOTIF'D Tile patterns, on concealed Z-splines attached to wood joists with wood floor or MASTICAL Underlayment Compound.



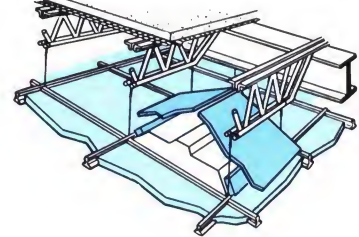
UL Design 6—1½ hr.

ACOUSTONE 90 Mineral Tile, 12" x 12", Fissured, Glacier or MOTIF'D Tile patterns, suspended on concealed Z-splines hung from bar joists with concrete deck above.



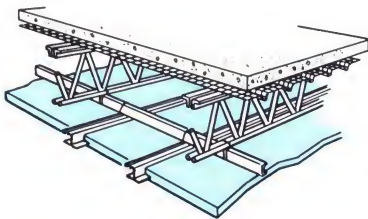
UL Design 278—2 hr. (beam 2 hr.)

ACOUSTONE 120 Mineral Tile, 24" x 24", Fissured, Glacier or Finesse patterns, laid on direct-hung Shadow Line grid suspension with concrete deck above.



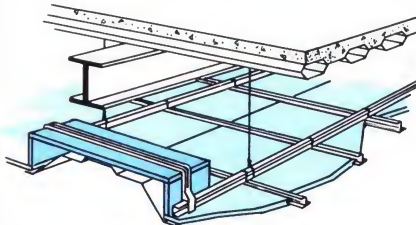
UL Design 41—2 hr.

ACOUSTONE 120 Mineral Tile, 12" x 12", Fissured, Glacier or MOTIF'D Tile patterns, suspended on concealed Z-splines hung from bar joists with concrete deck above.



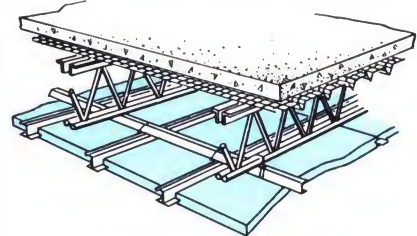
UL Design 85—2 hr. (beam 2 hr.)

ACOUSTONE 120 Mineral Tile, 12" x 12", Fissured, Glacier or MOTIF'D Tile patterns, suspended on indirect-hung concealed Z-splines with concrete deck above.



UL Design 96—3 hr.

ACOUSTONE 180 Mineral Tile, 12" x 12", Fissured or MOTIF'D Tile patterns, suspended on concealed Z-splines hung from bar joists with concrete deck above.



ACOUSTONE db presents the same physical characteristics as ACOUSTONE "F" with a foil backing added for applications where higher sound attenuation, increased insulation value and improved resistance to breathing are desired. It not only absorbs noise (STC 40-44) but efficiently retards sound travel through ceiling and over partitions—also eliminates the cost of extra backing. Available with the same **Fissured** surface of ACOUSTONE "F", and in **Glacier** and **Finesse** textures.

The built-in reflective foil back surface of ACOUSTONE db provides added resistance against winter heat loss—equal to a full inch of gypsum, and even greater resistance to summer heat gain—equal to over an inch of wood fiber roof insulation. The advantage is quickly translated into dollars saved in heating and cooling costs, as indicated by the "R" factors below.

Installed resistance (R) to heat flow†

	ACOUSTONE "db"	regular ¾" mineral tile and panels (without foil)
winter (upward)	4.20	4.18
summer (downward)	11.08	4.88

†Includes tile and air space

ACOUSTONE PC is supplied with a factory-applied plastic surface coating, ideal for reducing maintenance in ceilings where high soiling is anticipated. The durable soft-luster surface has at least 10 times the washability of regular acoustical finishes; withstands 3000 brush and water cycles without breaking in the Gardner Washability Test; flame spread rating 25. Otherwise, tile characteristics remain unchanged. All ACOUSTONE products listed above are available with this plastic coating.

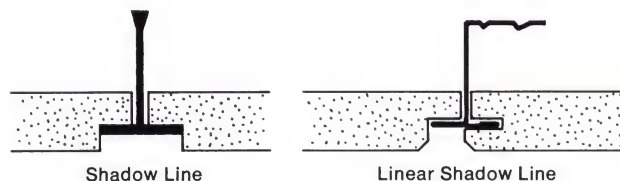
ACOUSTONE SSF (Self-Sanitizing Finish) Tile and Panels have an anti-fungi coating. Microbiological Laboratory Self-Sanitizing Tests on ACOUSTONE SSF indicated more than 90% reduction in bacterial count over a 5½-hour period, using the Hoffman, Jaeger, and Kay Procedure. Comparable results were obtained in accordance with the USDA/Pesticide Self-Sanitization Test, which resulted in a 63% reduction in bacterial count as compared to the control Inoculum Sample at 50% reduction.

Standard Colors of all ACOUSTONE products are white or ivory painted finish. Other pastel colors of TEXOLITE Alkyd Latex and Standard Paints are available on special order.

Shadow Line ACOUSTONE Panels . . . functional design that speaks for itself

Deep-rabbeted edges of these 24"x24" or 24"x48" panels combine with direct-hung exposed grid suspension system to produce one of the most impressive acoustical ceiling treatments available today. The massive-sized panels give any room a bold new scale, accenting the masculine, proclaiming the integrity of design and construction. Available in **Fissured**, **Glacier** and **Finesse** patterns of ACOUSTONE Mineral Acoustical Panels.

Linear Shadow Line presents an interesting variation by means of rabbeted edges on two sides of tile and concealed splines on the other two sides—thus accenting the long dimension of a ceiling. Exposed Z-splines make possible a variation in the reveal width. Built-in accessibility is provided in both the 12"x24" and 24"x24" tile sizes used.

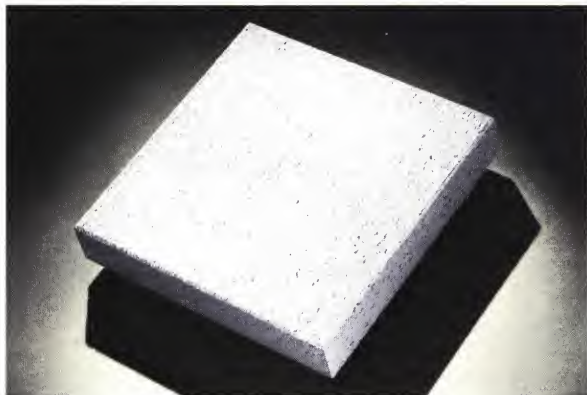


Bold 2x2 ACOUSTONE "F" Tile stands out vividly from Shadow Line recessed grid suspension also supporting modular lighting units
WAMPANOAG CLUB, West Hartford, Conn.

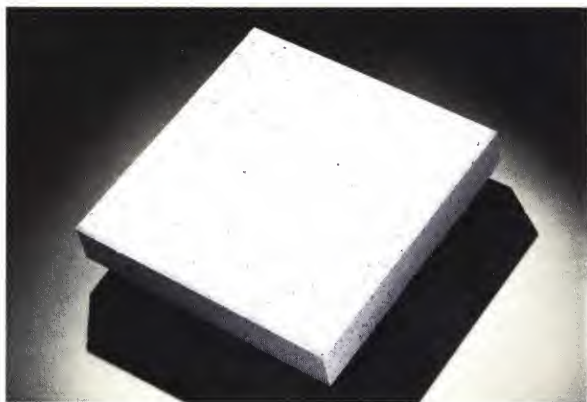




GLACIER . . . Bold, rich texturing created by deep, heavy fissures on the natural, unplaned surface



STRIATED . . . A handsome bas relief pattern, permanently brushed into the surface by an exclusive U.S.G. process



FINESSE . . . Classically beautiful and subdued . . . created by subtle fissures within the finely textured natural surface

ACOUSTONE Space Units . . . simplified modern method of adding absorption

These handsome 2" thick, 12"x12" design plaques *absorb sound on all six surfaces*, thus adding a third dimension to sound control. By controlling sound reverberation, they complement speech communication—the real criterion in sound conditioning. Used on either walls or ceilings, they serve as primary acoustical material or as economical supplements in areas where it is impractical to install acoustical material throughout a room.

The attractive, richly textured surfaces complement any interior. The three standard surfaces—**Glacier**, **Striated** and **Finesse**—are carefully selected to be most compatible with a broad range of interior designs. Custom designs, available on special order, can feature a company trademark or other symbol. The highly light-reflectant, neutral white finish may be redecorated to suit individual needs.

While highly resistant to soiling, ACOUSTONE Space Units may be easily cleaned with conventional methods. Quick removability of Units simplifies cleaning of rear surfaces. Optional "PC" plastic coating greatly improves washability—an ideal choice for high-soiling interiors.

Incombustible, Class A ACOUSTONE Space Units are of mineral fiber composition, and employ metal mounting hardware.

limitations

ACOUSTONE Space Units are not recommended for application where they may be subject to impact. They may be used under adverse temperature and humidity conditions, but are not recommended where water splashes or stands on the unit.

ACOUSTONE Space Units meet critical sound absorption challenge in broadcasting studio

WALLY HEIDER RECORDING STUDIOS, San Francisco, Calif. • Acoustical Engineer: KENWARD S. OLIPHANT

Absorption of ACOUSTONE Space Units (sabins per unit)

mounting	pattern	band center frequency—Hz						NRC
		125	250	500	1000	2000	4000	
16" patch	Glacier	.25	.74	1.71	1.92	1.79	1.59	1.54
	Striated	.33	.99	1.66	1.79	1.73	1.58	1.54
	Finesse	.36	1.06	1.71	1.79	1.64	1.38	1.55
24" patch	Glacier	.24	.74	1.76	2.13	2.01	1.71	1.66
	Striated	.35	1.01	1.79	1.97	1.94	1.69	1.68
	Finesse	.37	1.08	1.80	1.96	1.85	1.48	1.67
32" patch	Glacier	.22	.81	1.88	2.28	2.16	1.83	1.78
	Striated	.31	.92	1.82	2.09	2.06	1.85	1.72
	Finesse	.32	.93	1.85	2.13	1.95	1.54	1.72
16" strip	Glacier	.29	.87	1.66	1.89	1.77	1.56	1.55
	Striated	.41	1.02	1.67	1.77	1.73	1.60	1.55
	Finesse	.42	1.02	1.68	1.78	1.60	1.33	1.52

Note: One sabin is the equivalent of one square foot of material having an absorption coefficient of 1.00. Absorption values above do not apply for adhesive application.



wall installation

Spin-on Clip is used for most installations. Space units are located no less than 16" o.c. or 9" from obstructions, allowing rotation for installation. Clip is attached to the wall with two suitable fasteners and space unit is mounted to the clip stud (a corresponding nut is embedded in the space unit).

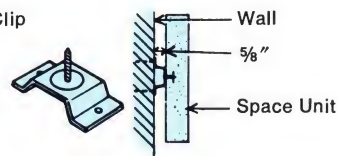
Snap-on Clip is used if space units must be closer than 16" o.c. or 9" from obstructions. A plain wall clip is attached to the wall with two suitable fasteners and the snap-on clip is fastened to the space unit with a 1½" USG Brand Type G Bugle Head Screw. The space unit is then attached to the wall clip by first engaging the upper lip of the snap-on clip and then pressing the unit into place. Space units may be made more rigid by shimming.

ceiling installation

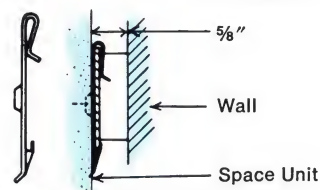
Pendent Mounting can be used to achieve a dramatic effect. A threaded rod is attached to the ceiling with a standard toggle (plaster, wallboard or other ceiling panels) or RAMSET drive-in stud, #10-24 male thread (masonry ceilings). The space unit is added by spinning it onto the other end of the rod.

Adhesive Mounting can be used, however some loss in absorption will result. Four 1-in. daubs of one of the following adhesives are used per unit: Acousti-Gum (Templar, Inc., South River, N.J.), Acousti-Bond (A. F. Bogart Co., Philadelphia, Pa.) or Penco Super Shur Stick (McGuffie Co., Cleveland, O.). All recommendations and product limitations set forth by the specific adhesive's manufacturer must be observed.

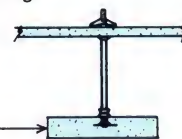
Spin-on Wall Clip



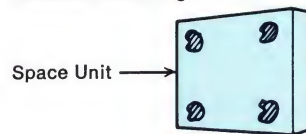
Snap-on Clip



Pendent Mounting



Adhesive Mounting



ACOUSTONE Space Units enhance imaginative architectural design and provide absorption control in hard-to-treat areas





Pin-Perforated—Bone white, unobtrusive random pattern with medium and small holes (1430 per sq. ft.) add the illusion of ceiling height.



Random—Non-directional freeform perforation patterns with large and medium diameter holes, 445 per sq. ft.



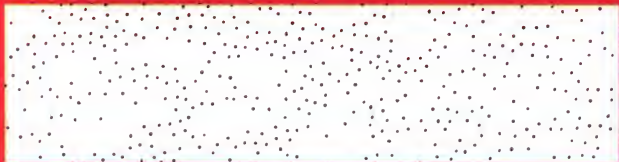
Fissured—Random fissuring deeply etched below the planed surface, brings rugged beauty to any room.



Non-Directional Fissured—AURATONE Tile in 12"x12" and 12"x24" sizes is also available in this nondirectional fissure.



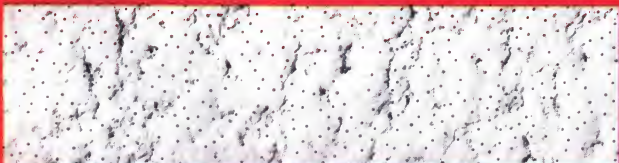
Snowdrift—Heavily textured with a tough coating in frosty white, barely revealing the basic micro-perf surface.



Micro-Perf—Thousands of minute perforations bring sound performance and increased light reflectance without distracting from ceiling appearance.



Texture 093—A subtle natural pattern with micro perforations that immediately stands out as "something different" in ceiling textures.



Texture 210—A rougher surface resembling a coarse-sprayed finish which virtually conceals the micro perforations.

AURATONE

Noncombustible Panels and Tile ... economical beauty in virtually every module

AURATONE Acoustical Panels and Tile are the result of a carefully controlled formulation that yields optimum balance between sound attenuation and sound absorption. They are made from prepared mineral fiber in a plant specially designed for this product. They include a high-density $\frac{3}{4}$ " ceiling panel, with improved stability, absorption, attenuation and insulation values.

The AURATONE line includes both Regular and FIRECODE Panels and Tile (see table, page 4), in the eight patterns illustrated here; the tile in $\frac{1}{2}$ ", $\frac{5}{8}$ " and $\frac{3}{4}$ " thicknesses, 12"x12", 12"x24" and 24"x24" sizes; the lay-in panels in $\frac{5}{8}$ " and $\frac{3}{4}$ " thicknesses, 24"x24" to 30"x60" sizes. The 24"x24" tile is available with the exclusive **Shadow Line** edge for recessed grid appearance.

Also available are AURATONE FIRECODE HF Panels, designed for applications where high temperatures and humidity are likely to be encountered such as swimming-pool enclosures. They are provided in $\frac{3}{4}$ " thickness, all standard panel sizes, and in Fissured and Pin-Perforated patterns.

Fire Resistance—AURATONE products are noncombustible, Class 25, rated by the ASTM E84 test method. Fire hazard classification: flame spread 25, fuel contributed 25, smoke developed 5. Fire ratings of 1 through 4 hours have been obtained (see U.S.G. Folder b-1541).

Sound Ratings—The various AURATONE patterns range from .45 to .80 in NRC Average, and carry STC Ratings of 36 to 49 (see tables, pages 28 and 29). The ability to stop sound from passing through the ceiling material and back again into other occupied areas is one of the outstanding characteristics of AURATONE Panels. Major factors contributing to the high sound attenuation figures of AURATONE are the density and thickness of the panels.

Economy, Accessibility—They are the recommended choice for any application calling for maximum performance at minimum cost—plus easy access to service lines above the ceiling, through lay-in installation of the panels in exposed grids. AURATONE Tile edge designs accommodate spline suspension, recessed grid, stapling or adhesive attachment.

Light Reflectance—Rated Class **a** except Texture 210 which is Class **b**.

Plastic Coating—All panel and tile patterns except Snowdrift are available with the PC factory-applied plastic surface coating for vastly improved washability and reduced maintenance.

Dramatic theater lobby is enhanced by fissured AURATONE
FIRECODE Tile on concealed suspension system ►

CAPITAL PLAZA CINEMA, Trenton, N.J. • Architect:
WILLIAM RISEMAN & ASSOC.



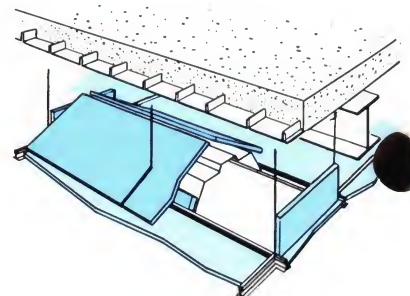
Special-Function
AURATONE Tile and Panels . . .
meeting today's full range of requirements

AURATONE FIRECODE Tile and Panels are specially formulated to provide 1, 2, 3, and 4-hour fire protection when used in suspension systems tested by Underwriters' Laboratories, Inc.; yet, they offer the same sound absorption, light reflectance and beauty as regular AURATONE Tile and Panels.

The following UL Designs offer a selection of exposed grid for lay-in applications, concealed Z-spline indirect-hung suspension and concealed accessible direct- or indirect-hung suspension. The concealed accessible suspension provides easy access to the plenum area above the ceiling for servicing electrical, heating and air conditioning installations. The Designs cover a wide range of floor and roof constructions to meet virtually every building requirement. Complete descriptions are contained in separate U.S.G. System Folder b-1541. UL label service is provided for each of these Designs:

UL Design 45—4 hr. (beam 4 hr.)

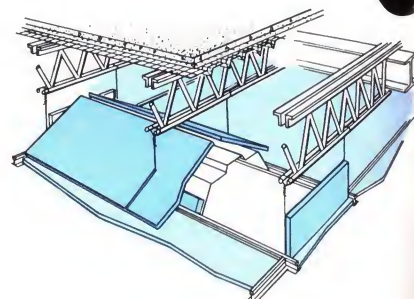
AURATONE FIRECODE Panels, $\frac{5}{8}$ "x24"x48", laid on direct-hung exposed grid suspended from cellular steel floor and 2½" concrete deck above.



PANELS

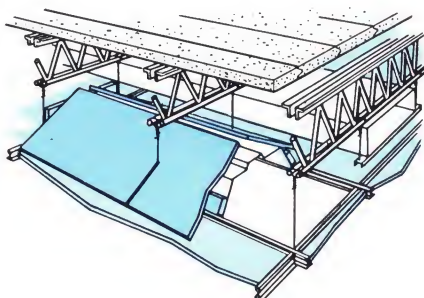
UL Design 299—2 hr. (beam 3 hr.)

AURATONE FIRECODE Panels, any module from 24"x24" to 30"x60", laid on direct-hung exposed grid suspended from bar joists with 2½" concrete deck on metal lath above.



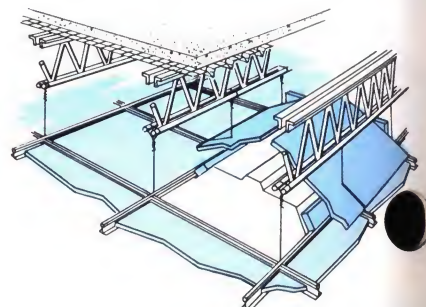
UL Design RC-22—2 hr.

AURATONE FIRECODE Panels, $\frac{5}{8}$ "x24"x48", laid on direct-hung exposed grid suspended from bar joists with USG Metal Edge Gypsum Plank above.



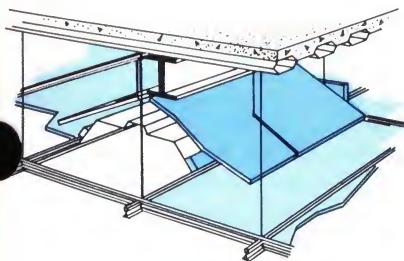
**UL Design 72—2 hr. and
 UL Design 226—2 hr. (beam 4 hr.)**

AURATONE FIRECODE Panels, $\frac{5}{8}$ "x24"x48" or 24"x24", laid on direct-hung exposed grid suspended from bar joists with 2½" concrete deck above.

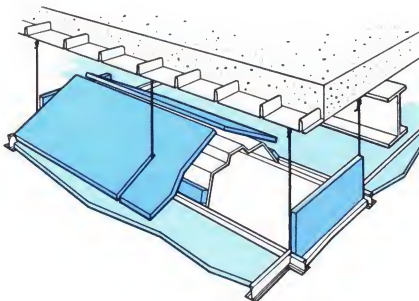


UL Design 65—3 hr. (beam 5 hr.)

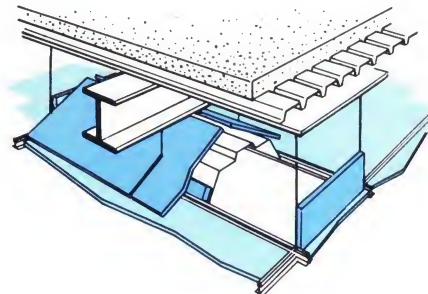
AURATONE FIRECODE Panels, $\frac{5}{8}$ "x24"x48", laid on direct-hung exposed grid suspended from cellular steel floor and $2\frac{1}{2}$ " concrete deck above.

**UL Design 226—3 hr. (beam 4 hr.)**

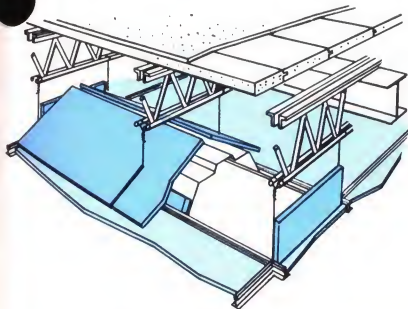
AURATONE FIRECODE Panels, $\frac{5}{8}$ "x24"x48" or 24"x24", laid on direct-hung exposed grid suspended from cellular steel floor and $2\frac{1}{4}$ " concrete deck above.

**UL Design 212—3 hr. (beam 3 hr.)**

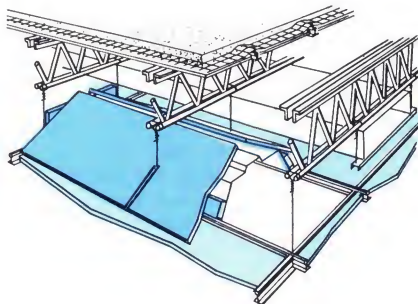
AURATONE FIRECODE Panels, $\frac{5}{8}$ "x24"x48", laid on direct-hung exposed grid suspended from cellular steel floor and $2\frac{1}{2}$ " concrete deck above.

**UL Design 293—2 hr. (beam 2 hr.)**

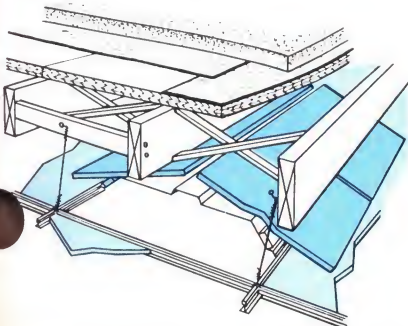
AURATONE FIRECODE Panels, $\frac{5}{8}$ "x24"x48" or 24"x24", laid on direct-hung exposed grid suspended from bar joists with USG Gypsum Floor Plank and $\frac{1}{2}$ " MASTICAL Underlayment Compound above.

**UL Design RC-6—2 hr.**

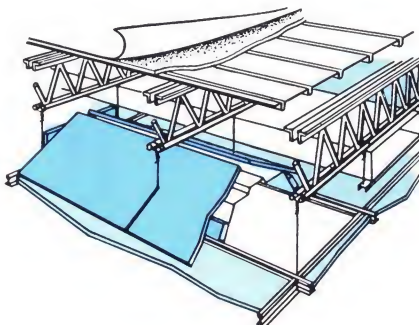
AURATONE FIRECODE Panels, $\frac{5}{8}$ "x24"x48", laid on direct-hung exposed grid suspended from bar joists with 2" gypsum roof deck poured on gypsum formboard.

**UL Design 31—1 hr.**

AURATONE FIRECODE Panels, $\frac{5}{8}$ "x24"x48" or 24"x24", laid on direct-hung exposed grid suspended from 2x10 wood joists with 1" nom. wood floor or MASTICAL Underlayment Compound above.

**UL Design RC-15—1 hr.**

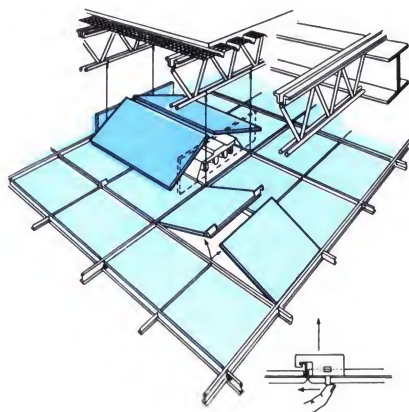
AURATONE FIRECODE Panels, $\frac{5}{8}$ "x24"x48", laid on direct-hung exposed grid suspended from bar joists with $1\frac{1}{2}$ " steel roof deck and 1" incombustible insulation above.



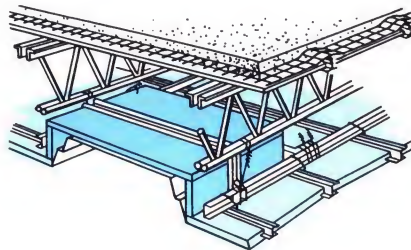
Special-Function AURATONE Tile and Panels *continued*

TILE

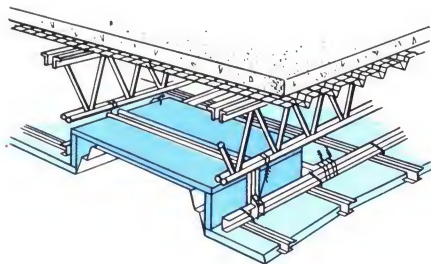
UL Design 281—2 hr. (beam 2 hr.)
AURATONE FIRECODE Tile, $\frac{5}{8}$ "x12"x12" or 24"x24", suspended on concealed accessible grid system with $2\frac{1}{2}$ " concrete deck on riblath over bar joists above.



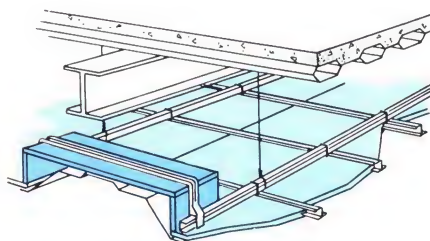
UL Design RC-13—2 hr.
AURATONE FIRECODE Tile, $\frac{5}{8}$ "x12"x12", suspended on concealed Z-spline system hung from bar joists with $2\frac{1}{2}$ " gypsum roof deck poured on gypsum formboard.



UL Design 84—2 hr.
AURATONE FIRECODE Tile, $\frac{5}{8}$ "x12"x12", suspended on concealed Z-spline system hung from bar joists with $2\frac{1}{2}$ " concrete deck on riblath above.



UL Design 59—3 hr. (beam 4 hr.)
AURATONE FIRECODE Tile, $\frac{3}{4}$ "x12"x12", suspended on concealed Z-spline system with cellular steel floor and $2\frac{1}{2}$ " concrete deck above.



AURATONE PC Tile and Panels are provided with a special factory-applied plastic coating which reduces ceiling maintenance where high soiling is anticipated. The plastic surface has at least 10 times the washability of conventional acoustical surface finishes. Acoustical performance is virtually unaffected. Snowdrift pattern is not available with plastic coating.

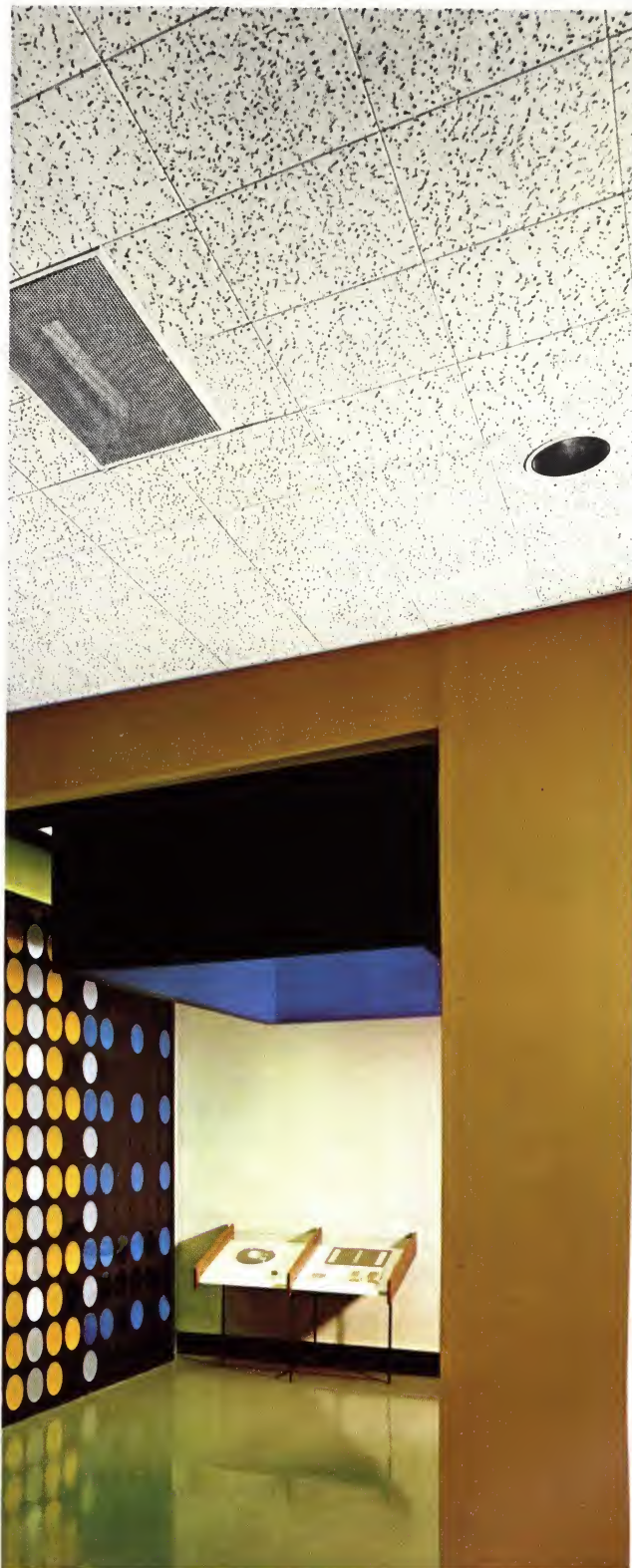
AURATONE SSF (Self-Sanitizing Finish) Tile and Panels have an anti-fungi coating. Microbiological Laboratory Self-Sanitizing Tests on AURATONE SSF indicated more than 90% reduction in bacterial count over a 5½-hr. period, using the Hoffman, Jaeger, and Kay Procedure. Comparable results were obtained in accordance with the USDA/Pesticide Self-Sanitization Test, which resulted in a 63% reduction in bacterial count as compared to the control Inoculum Sample at 50% reduction.

Non-Standard Sizes of AURATONE are available within the following limits on special order:

width	length
12" to 24"	24" to 60"
24" to 30"	24" to 48"

Consult local building officials for acceptance; UL label service not available for most non-standard sizes.

Fissured 12"x12" AURATONE Tile is available with plastic coating to reduce ceiling maintenance, also with special SSF surface for critical sanitary requirements.



DELTA COMPUTER BLDG., Atlanta, Ga.
Architect: HEERY & HEERY, AIA

AIRSON Air Distribution Products ... optimum answer to constant comfort

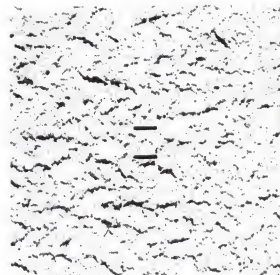
ACOUSTONE Tile and AURATONE Panels and Tile are supplied in four types and four popular patterns for use in the AIRSON Ceiling Air Distribution System. This system, still revolutionary despite the millions of square feet now in use, employs openings in the tile or grid to distribute a wall-to-wall flow of heated or cooled air into a room. Unlike traditional methods of air distribution, the AIRSON Tile or Panel System is not dependent upon a costly and complicated system of air supply ducts and diffusers. Instead, it utilizes the plenum area above the ceiling to carry conditioned air to the room through individual tile or grid orifices. The continuous, uninterrupted beauty of the ceiling is preserved, as all visible diffusers are eliminated.

In the standard AIRSON Tile System, movable slides on the backs of the tiles (easily adjustable from below) act like small dampers to control the volume of air. Since each tile or panel is individually adjustable, the area can be zoned and balanced for comfort. The ceiling surface is installed on concealed Z-splines or exposed grid—either with all of the tile in the ceiling slotted to provide AIRSON jets, or with a percentage of tile unslotted.

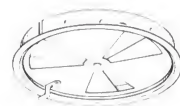
The ACOUSTONE and AURATONE products used are specially designed for use with AIRSON. The bright, non-breathing, foil back surface prevents seepage of air through the field of the tile and provides reflective insulation in the plenum space. The selection consists of $\frac{3}{4}$ " ACOUSTONE, either the regular or rated 120 version, in **Fissured** and **Glacier** patterns, 12"x12", 12"x24" and 24"x24" sizes; $\frac{5}{8}$ " AURATONE Panels, regular or FIRECODE, 24"x24" to 30"x60" sizes, and $\frac{5}{8}$ " or $\frac{3}{4}$ " AURATONE FIRECODE Tile, 12"x12" to 24"x24" size—in **Pin-Perforated**, **Fissured** and **Micro-Perf** patterns. All are available plastic-coated if desired.

Two jet arrangements are offered: **A-2**, with two orifices per tile, and **A-5**, with five orifices placed parallel with the fissures of the tile. The A-2 orifice arrangement gives a 35% deeper penetration than A-5 at the same flow conditions, making it more suitable for high ceiling—low flow applications. Both have been proven by test far superior in penetration to ordinary perforated ventilating tile. For added flexibility, AIRSON AURATONE Panels may be furnished with either 25%, 50% or 100% slotting. A third type of tile available is **unslotted**.

In addition to the slotted tile suspension, AIRSON Grid systems are used with unslotted panels and tile. These are the steel **AIRFLO T-2 Grid** and **T-4 Grid** in which air distribution is accomplished through orifices at 2" intervals in the face of the tee. Both systems include complete metal accessories: slides, splines, mouldings, runners, spot jets, clips. Design, erection and specification are covered in U.S.G. Folder b-1561.

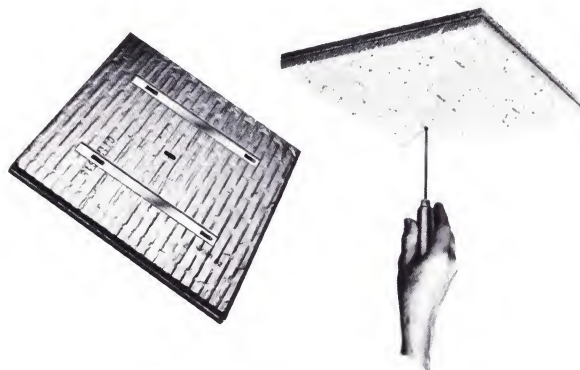


AIRSON ACOUSTONE A-2 Tile

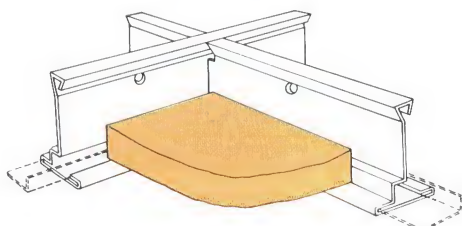
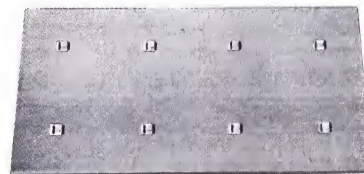


Spot Jet

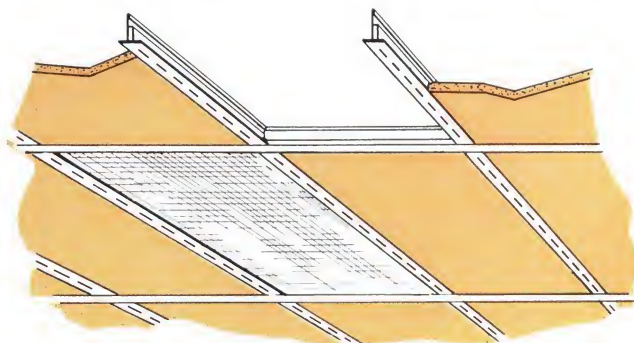
Top and bottom views of AIRSON ACOUSTONE A-5 tile (below) show foil and adjustable slides located on back of unit, and adjustment from face of unit made easily with ordinary ice pick for air flow control.



In the AIRSON AURATONE A-2 panel (below), adjustable damper slides on back provide control of air without removing the panel.



AIRFLO T-4 Grid



AIRFLO T-2 Grid



12x12 AIRSON ACOUSTONE A-5 Tile in "F" pattern are integral components of this AIRSON Ceiling Air Distribution System
SCOTT, FORESMAN & CO., Glenview, Ill.
Architect: PERKINS & WILL



Lay-in grid installation of AIRSON AURATONE Panels, Fissured pattern

CRYSTAL PLAZA, Arlington, Va.
Architect: WEIHE, BLACK, KERR & JEFFRIES, AIA

Indirect-hung concealed suspension supports
metal-clad PERFATONE Acoustical Units



AUDITONE Wood Fiber Tile and Panels . . . outstanding beauty on a restricted budget

Lightweight AUDITONE Wood Fiber Acoustical Tile and Panels are the popular choice where economical ceiling treatment is desired without a requirement for fire resistance. Made in $\frac{1}{2}$ " and $\frac{3}{4}$ " thicknesses and four sizes ranging from 12"x12" to 24"x48" (see table, page 4), AUDITONE is designed for application either by adhesive, nailing or stapling to furring strips, or with metal suspension systems.

Five AUDITONE patterns are available: **Perforated**, with 529 holes of $\frac{3}{16}$ " dia. psf; **Random Perforated**, with 323 holes of $\frac{3}{16}$ " and $\frac{1}{4}$ " dia. psf; **Pin-Perforated**, with more than 1,000 perforations psf., a **Fissured** pattern simulating travertine marble, and heavily textured **Snowdrift** in frosty white.

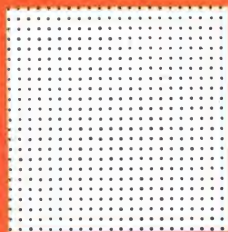
Sound Ratings—AUDITONE patterns range from .50 to .70 in NRC average, and carry STC rating of 40 to 44 (see tables, pages 28 and 29).

Maintenance—AUDITONE can be repeatedly brush or spray painted with oil or resin emulsion casein paint without appreciable loss of sound absorption. It can be cleaned with putty- or paste-type wallpaper cleaners.

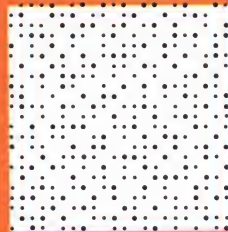
Resistance to Soiling—The smooth white painted factory finish of AUDITONE tile resists soiling. AUDITONE with T&G edges minimizes objectionable air travel through the joints when used on suspended nailing strips.

Fire Resistance—Fissured pattern is Class 75 (II), all others are Class 200 (III) (Fed. Spec. SS-S-118a).

Light Reflectance—Rated Class a.



PERFORATED



RANDOM-PERFORATED



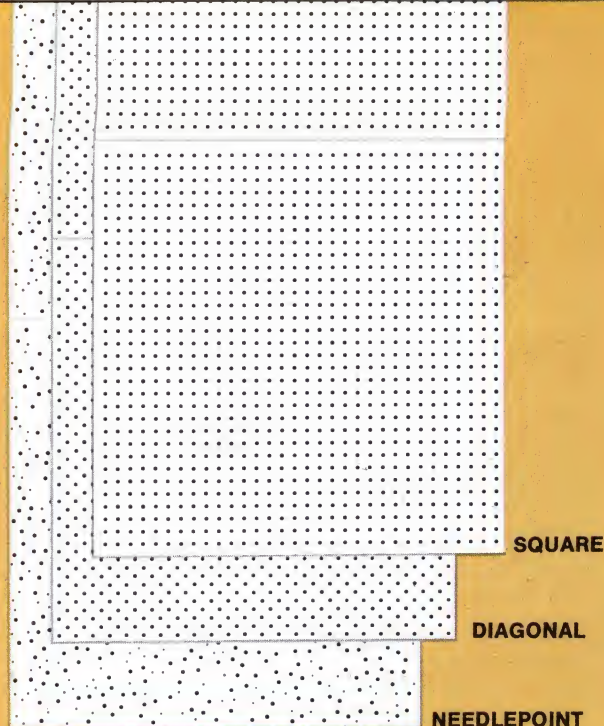
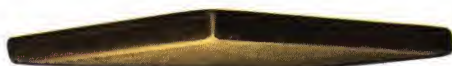
PIN-PERFORATED



FISSURED



SNOWDRIFT

**PERFATONE Assembly Unit**Carrying channel with
Tee Runners in placeSound-absorbent mineral wool pad
in flame-resistant membrane

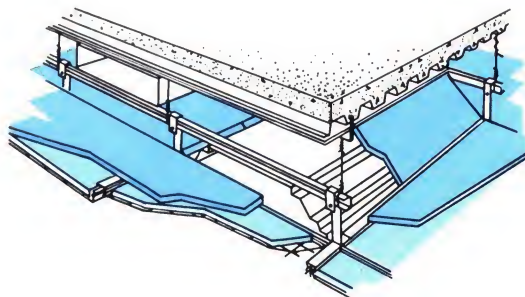
Wire mesh to provide air space



PERFATONE metal pan

UL Design 49—3 hr. (beam 4 hr.)

Fire-Rated PERFATONE Units suspended
on indirect-hung PERFATONE
Tee Bars with concrete deck above.



PERFATONE Acoustical Units ... where maintenance is a challenge

PERFATONE Acoustical Units are perforated metal pans, 12"x12" to 12"x48" in size, scored to simulate 12"x12" units. Enclosed within the metal units are special mineral fiber sound-absorbent pads, supported on formed wire mesh which provides an air space between the pad and the metal facing. The system makes possible geometrically perfect installation—a fine finished ceiling appearance which other materials cannot duplicate. The mineral fiber pads help to retain heated or cooled air in the room while controlling sound.

PERFATONE units are available in 24-ga. cold rolled or electro-galvanized steel, or .025" and .032" aluminum. The selection of enamel coatings includes two coats on face side only, or with a prime coat on back side. Assemblies available include:

—Conventional PERFATONE System, with three styles in face patterns—**Needlepoint**, .125" and .062" hole dia.; **Diagonal**, .109" hole dia.; and **Square**, .109" hole dia.

—Fire-rated PERFATONE Systems, providing ratings of up to 3 hours, with two face pattern styles—**Random** and **Diagonal** perforated. Special high density mineral fiber pads are used.

The PERFATONE units are also available **Unperforated** for use as border tile or for decorative effects. For other characteristics, see table on page 5.

Fire Protection—Use of Fire-rated PERFATONE systems eliminates need for contact fireproofing and/or intermediate ceiling fire barriers in many installations; Conventional PERFATONE system rated Incombustible by AIMA, class 25 in accordance with ASTM E84.

Sound Ratings—.80 to .95 NRC range, 30-34 STC; see tables, page 29.

Maintenance—Provides quick access to any plenum area; easily maintained and highly washable.

Decoration—Has 70% light reflectance in white; can be painted with high-grade metallic paint without impairing acoustical properties, if care is taken not to fill perforations.

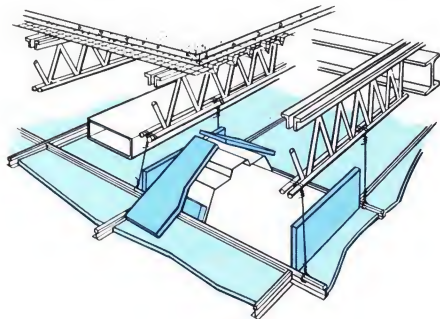
limitations

In areas of high humidity or where moisture might impinge against the acoustical surface, Aluminum PERFATONE Acoustical Units with galvanized fittings should be used, or a different architectural design should be considered.

PERFATONE Accessories, in addition to pans and mineral fiber pads, include parts made to fit and function together—tee bars, clips, splices, cornice molding.

Fire-Rated PERFATONE systems eliminate the need for contact fireproofing and/or intermediate ceiling fire barriers in many installations. Fire ratings of up to 3 hours are provided with two face pattern styles—**Random** and **Diagonal** perforated. Special high-density mineral fiber pads are used.

UL Design 312—2 hr. (beam 2 hr.)
 USG FIRECODE Gypsum Ceiling Panels,
 ½"x24"x24" laid on direct-hung exposed
 grid suspended from bar joists with 2½"
 concrete deck above.



Attractive HI-LITE Ceiling Panels in accessible exposed grid suspension are ideal for many areas such as this laboratory where sound absorption is not a major factor.

Non-Acoustical Ceiling Panels . . . for low-cost versatile suspended ceilings

HI-LITE Ceiling Panels are water-felted mineral fiber and expanded perlite noncombustible units ⅝" thick, in 24"x24" and 24"x48" sizes for exposed-grid lay-in application. They offer class a light reflectance and class A fire resistance with fire hazard classification 25-25-5. Sound attenuation rating for exposed-grid suspension continuous over partitions is STC 40-44. **Limitation**—not recommended where sound absorption is required.

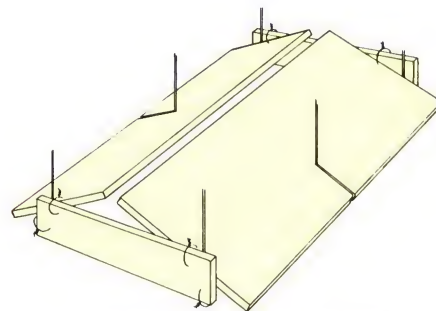
USG Gypsum Ceiling Panels are composed of a noncombustible gypsum core with baked-on textured paint finish. Available in ½" and ⅝" thicknesses, 24"x24" and 24"x48" sizes, they provide an attractive ceiling treatment at economical cost while exhibiting superior fire resistance and high light reflectance. Designed for lay-in application in suspended grid systems. **Limitation**—not recommended where exposure to moisture is extreme or continuous.

USG Asbestos Board, ⅜" thick in nom. 24"x24" and 24"x48" sizes, is supplied either Perforated or Unperforated, for lay-in use in ceiling grid systems. Square-edged or beveled (⅛" bevel on all four sides). Perforations, .197" dia., are spaced ½" o.c. White Rippletone texture finish. For other characteristics, see table on page 5.

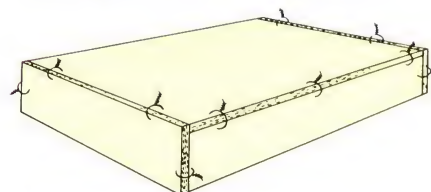
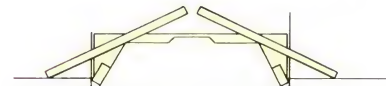
Other tile bases, where an incombustible base for adhesive application of ceiling tile is required, include BAXBORD and BAXBORD FIRECODE gypsum backing board, SHEETROCK and SHEETROCK FIRECODE gypsum wallboard, ROCKLATH plaster base. See U.S.G. Folders f-1861, f-1871.

THERMAFIBER Light Fixture Protection brings packaged convenience to jobs using U.S.G. ceiling systems, whether panel or tile. This consists of 1¼" thick semi-rigid mineral wool board wire-tied and suspended over fixtures. The assemblies (illustrated right) carry UL Labels covering board module ceiling designs of 1, 1½, 2, 3 and 4 hours for which ratings have been established. They are adaptable to acoustical tile and panel ceiling constructions using either an exposed grid or concealed Z-spline suspension.

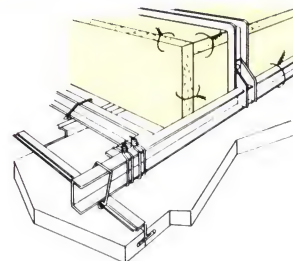
The THERMAFIBER package is shipped in one module for acoustical ceiling board, and in three where tile is used.



tent assembly with exposed grid



box assembly with concealed Z-spline suspension










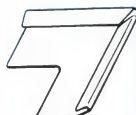




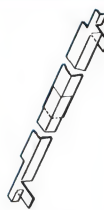

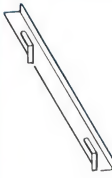
Light Fixture Protection



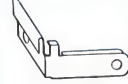
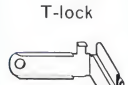


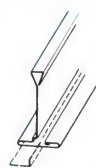



USG Accessories . . . the key to a perfect installation

USG Metal Accessories for Ceilings are precision-made to assure performance of the three U.S.G. suspension systems: Concealed Z-Spline, Concealed Accessible, and Exposed Z-Spline.

U.S.G. also supplies complete accessories for two other systems described in this catalog—the AIRSON Tile Air Distribution System, and PERFATONE Metal Pan System. Ratings, erection and specification of all assemblies are covered in pertinent U.S.G. System Folders. For the three spline systems, metal accessories are supplied in all groups including 16-ga. cold rolled channels, finish channels, corner plates, various clips and splines, splices, spacers and split angles.

systems	 Z-spline	 Z-spline splice	 no. 82A clip	 SBS-153 Z-spline clip	 no. 85 or 87 Z-spline clip	 spring steel spacer	 finish channel and splice
conc. Z	3/4"	3/4"	X	X	X	X	X
conc. acc.	1 1/4"	1 1/4"	X	X	X	X	X
E-Z-S	1 1/4"	1 1/4"	X	X	X	X	X
AIRSON	3/4"	3/4"	X		X	X	X

	 finish channel corner plate	 flat spline	 1/16" angle spline	 A—.054 tee spline  B—7/16" tee spline	 R & L split angle	 spot jet	 A-5 AIRSON slide
conc. Z	X	X		A			
conc. acc.	X		X	A			
E-Z-S	X	X	X	B			
AIRSON	X	X		A	X	X	X

	 AIRFLO T-splice  AIRFLO T-2 runner	 AIRFLO T-lock  AIRFLO T-lock M	 AIRFLO T-2 runner & tape  T-slide & AIRFLO T-2 runner	 AIRFLO-T4 tee	 PERFATONE T-runner	 PERFATONE T-runner clip	 PERFATONE mesh & pad
AIRFLO	X	X	X	X			
PERFATONE					X	X	X

NOTE: X—denotes use with the particular system. Abbreviations: conc Z—concealed Z-spline; conc. acc.—concealed accessible Z-spline; E-Z-S—exposed Z-spline; AIRSON—AIRSON air distribution; AIRFLO—AIRSON AIRFLO ceiling grid; PERFATONE—PERFATONE metal acoustical units.

sound absorption/flame resistance/light reflection

product	thick- ness	mount- ing	sound absorption coefficients						NRC range	light refl. class	flame resistance SS-S-118a class	flame spread E84 Index	unit size tested
			125	band 250	center 500	frequency—Hz 1000	2000	4000					
ACOUSTONE Tile													
“F” Fissured	¾”	1	.03	.27	.83	.99	.82	.71	.70-.80	a	25	15	12”x12”
		7	.68	.67	.65	.84	.87	.74		a	25	15	12”x12”
Glacier	¾”	1	.04	.20	.73	.99	.88	.89	.65-.75	b	25	15	12”x12”
		7	.60	.73	.73	.93	.88	.90	.75-.85	b	25	15	12”x12”
Finesse	¾”	7	.78	.57	.59	.73	.70	.60	.60-.70	a	25	15	12”x12”
ACOUSTONE db Tile													
Fissured	¾”	7	.49	.41	.69	.99	.90	.83	.70-.80	a	25	15	12”x12”
		7	.58	.48	.67	.99	.92	.85		a	25	15	12”x24”
Glacier	¾”	7	.30	.46	.77	.99	.89	.90	.75-.85	b	25	15	12”x12”
ACOUSTONE “90” Fissured (1)	¾”	7	.83	.73	.68	.87	.93	.78	.75-.85	a	25	15	12”x12”
ACOUSTONE “120” Fissured (2)	¾”	7	.45	.46	.72	.97	.87	.90	.70-.80	a	25	15	12”x12”
ACOUSTONE “180” Fissured	¾”	7	.45	.48	.62	.97	.96	.96	.70-.80	a	25	25	12”x12”
ACOUSTONE “PC” Fissured	¾”	1	.22	.21	.78	.99	.78	.59	.65-.75	a	25	25	12”x12”
		7	.70	.63	.67	.82	.86	.62	.70-.80				
MOTIF'D ACOUSTONE Striated	¾”	1	.03	.26	.77	.93	.83	.78	.65-.75	a	25	15	12”x12”
		7	.80	.69	.66	.86	.90	.87	.75-.85	a	25	15	12”x12”
MOTIF'D ACOUSTONE “db” Galaxy	¾”	7	.58	.46	.69	.91	.80	.76	.65-.75	a	25	15	12”x12”
AIRSON ACOUSTONE “A-2” Fissured, slotted (4)	¾”	7	.85	.49	.68	.98	.92	.88	.70-.80	a	25	15	12”x12”
AIRSON ACOUSTONE “A-5” Fissured, slotted (5)	¾”	7	.81	.48	.65	.94	.93	.84	.70-.80	a	25	15	12”x12”
AURATONE Panels													
Fissured	⅝”	7	.32	.43	.70	.95	.81	.75	.65-.75	a	25	25	24”x48”
	¾”	7	.37	.46	.74	.94	.81	.79	.70-.80	a	25	25	24”x48”
Pin-Perforated	⅝”	7	.30	.43	.74	.95	.73	.55	.65-.75	a	25	25	24”x48”
	¾”	7	.35	.46	.76	.95	.76	.64	.70-.80	a	25	25	24”x48”
Random-Perf. (7)	⅝”	7	.40	.46	.60	.99	.87	.58	.70-.80	a	25	25	24”x48”
Snowdrift (Pin-Perf.)	⅝”	7	.30	.38	.74	.83	.63	.47	.60-.70	a	25	25	24”x48”
Micro-Perf.	⅝”	7	.30	.30	.55	.96	.74	.59	.60-.70	a	25	25	24”x48”
Texture 093	⅝”	7	.36	.44	.60	.85	.73	.57	.60-.70	a	25	25	24”x48”
Texture 210	⅝”	7	.25	.29	.57	.93	.73	.57	.60-.70	b	25	25	24”x48”
AURATONE FIRECODE Panels													
Fissured	⅝”	7	.24	.30	.72	.89	.73	.67	.60-.70	a	25	25	24”x48”
Pin-Perforated	⅝”	7	.25	.33	.73	.88	.70	.55	.60-.70	a	25	25	24”x48”
AIRSON AURATONE Panels													
Fissured, 50% A-5 Slotted (5)	⅝”	7	.29	.33	.58	.79	.66	.57	.60-.70	a	25	25	24”x48”
50% A-2 Slotted (4)	⅝”	7	.27	.34	.58	.82	.71	.60	.60-.70	a	25	25	24”x48”
AIRSON AURATONE FIRECODE Panels, Fissured													
50% A-5 Slotted	⅝”	7	.29	.34	.59	.71	.64	.57	.55-.65	a	25	25	24”x48”
50% A-2 Slotted	⅝”	7	.27	.32	.58	.72	.61	.63	.55-.65	a	25	25	24”x48”
AURATONE FIRECODE HF Panels													
Fissured	¾”	7	.23	.31	.62	.76	.69	.68	.60-.70	a	25	25	24”x48”
Pin-Perforated	¾”	7	.27	.32	.64	.76	.64	.57	.60-.70	a	25	25	24”x48”
AURATONE Tile													
Fissured	¾”	7	.42	.42	.70	.83	.79	.75	.65-.75	a	25	25	12”x12”
Pin-Perforated	¾”	7	.41	.43	.68	.86	.73	.59	.65-.75	a	25	25	12”x12”
	⅝”	7	.48	.45	.62	.87	.72	.56	.60-.70	a	25	25	12”x12”
	⅝”	1	.04	.16	.65	.97	.70	.50	.55-.65	a	25	25	12”x12”
	½”	1	.02	.15	.58	.98	.71	.49	.55-.65	a	25	25	12”x12”
Random-Perf. (15)	¾”	7	.43	.34	.62	.93	.79	.58	.60-.70	a	25	25	12”x12”
	½”	1	.09	.24	.60	.63	.62	.54	.45-.55	a	25	25	12”x12”
Non-directional Fissured	¾”	7	.32	.43	.65	.76	.68	.66	.65-.75	a	25	25	12”x12”
AURATONE FIRECODE Tile													
Fissured	¾”	7	.36	.39	.66	.87	.74	.62	.60-.70	a	25	25	12”x12”
	⅝”	7	.36	.36	.55	.86	.77	.63	.60-.70	a	25	25	12”x12”
Pin-Perforated	¾”	7	.38	.39	.66	.88	.72	.51	.60-.70	a	25	25	12”x12”
	⅝”	7	.39	.35	.56	.86	.72	.49	.55-.65	a	25	25	12”x12”
Random-Perf. (15)	¾”	7	.34	.38	.69	.92	.71	.53	.65-.75	a	25	25	12”x12”
Non-directional Fissured	¾”	7	.26	.38	.66	.78	.68	.60	.65-.75	a	25	25	12”x12”
AUDITONE Tile	½”	1	.25	.28	.62	.58	.66	.68	.50-.60	a	200		12”x12”
Random-Perf. (8, 9)		2	.15	.67	.46	.52	.66	.71	.55-.65				12”x12”
	¾”	1	.19	.38	.68	.67	.78	.73	.60-.70		200		12”x12”
		2	.25	.65	.51	.73	.76	.78	.60-.70				12”x12”
		7	.48	.43	.57	.76	.81	.69	.60-.70				12”x24”

product	thick- ness	mount- ing	sound absorption coefficients						NRC range	light refl. class	flame resistance SS-S-118a class	flame spread E84 index	unit size tested
			125	250	500	1000	2000	4000					
PERFATONE Acoust. Units													
Needlepoint	1 $\frac{1}{16}$ "	7	.91	.79	.88	.99	.79	.60	.80-.90	b	25	20	12"x24"
Diag. 1105	1 $\frac{1}{16}$ "	7	.85	.76	.82	.96	.79	.69	.80-.90	b	25	20	12"x24"
Diag. 1740	1 $\frac{1}{16}$ "	7	.76	.76	.90	.99	.85	.70	.85-.95	b	25	20	12"x24"
Square	1 $\frac{1}{16}$ "	7	.81	.89	.93	.99	.77	.80	.85-.95	b	25	20	12"x24"
Fire-Rated PERFATONE Diagonal 1105 (11, 12)	2 $\frac{1}{16}$ "	7	.66	.72	.96	.99	.83	.67	.85-.95	b	25	20	12"x24"

NOTE: All surfaces tested were painted. Mounting No. 1—adhesive application to gypsum board. Mounting No. 2—stapling or nailing to wood strips. Mounting No. 7—metal sus-
pension system. Also see Footnotes, page 30.

sound attenuation properties

product	thick- ness	mount- ing	sound attenuation factors — db											STC	unit size tested
			band center frequency — Hz												
			125	175	250	350	500	700	1000	1400	2000	2800	4000		
ACOUSTONE Tile	¾"	IC	23	27	25	23	26	26	28	32	36	43	50	25-29	12"x24"
Fissured		Ad	30	36	38	41	46	48	52	59	58	>60	59	45-49	12"x12"
		IE	24	30	23	21	24	25	25	30	34	42	47	25-29	12"x24"
Finesse	¾"	IC	26	29	29	28	31	33	35	41	47	57	58	30-34	12"x12"
ACOUSTONE db Tile & Panels	(Also see 16—freq. section on next page)														
Fissured	¾"	IC	28	33	33	34	38	41	44	49	54	>60	56	40-44	12"x12"
		IC	32	36	34	34	41	43	48	53	55	>60	56	40-44	12"x24"
		IE	28	37	32	33	37	39	41	49	52	>60	56	35-39	12"x24"
		IE	28	35	28	34	37	40	43	47	51	55	50	40-44	24"x24"
Glacier (3)	¾"	IC	27	31	31	30	34	37	39	44	49	56	51	35-39	12"x12"
		CCF	32	37	30	37	40	42	44	46	54	60	58	40-44	12"x12"
ACOUSTONE "120" Tile	¾"	IC	28	31	34	33	38	41	43	49	53	59	56	35-39	12"x12"
Fissured		IE	28	35	28	34	37	40	43	47	51	55	50	40-44	24"x24"
MOTIF'D Galaxy "db"	¾"	IC	27	35	33	33	38	41	44	50	53	>60	57	35-39	12"x12"
AIRSON ACOUSTONE "A-2" Fissured, slotted	¾"	IC	24	30	30	30	34	36	38	45	49	57	56	35-39	12"x12"
AIRSON ACOUSTONE "A-5" Fissured, slotted	¾"	IC	23	31	27	30	34	37	39	47	52	56	53	35-39	12"x12"
		IC	21	27	24	25	30	30	33	40	44	52	51	30-34	12"x12"
AURATONE Regular Panels	(Also see 16—freq. section on next page)														
Fissured	¾"	IE	33	36	32	35	38	43	48	53	55	58	58	40-44	24"x48"
		CE	29	35	29	34	34	38	45	46	56	55	54	35-39	
Pin-Perforated	¾"	IE	34	37	33	36	40	43	47	53	54	58	58	40-44	
		CE	29	38	32	34	36	39	45	49	55	53	51	40-44	
Pin-Perforated PC	¾"	CE	30	37	33	34	36	41	46	50	54	54	52	40-44	
Random-Perf.	¾"	IE	33	34	31	35	38	41	46	52	54	60	59	40-44	
AIRSON A-5 Fissured	¾"	CE	25	33	26	30	32	35	41	48	51	52	50	35-39	
AIRSON A-2 Fissured	¾"	CE	27	34	27	31	32	37	44	47	52	52	50	35-39	
AURATONE FIRECODE Panels															
Fissured	¾"	CE	29	34	32	38	38	43	47	48	52	53	52	40-44	24"x48"
Pin-Perforated	¾"	CE	31	38	35	39	40	46	47	48	53	53	49	40-44	
Random-Perf.	¾"	IE	29	34	34	37	41	43	47	52	53	58	57	40-44	
AIRSON A-5 Fissured	¾"	CE	25	34	27	31	33	38	42	44	49	50	47	35-39	
AIRSON A-2 Fissured	¾"	CE	28	36	31	33	36	40	46	46	52	53	52	35-39	
AURATONE Regular Tile															
Fissured	¾"	CCF	30	36	35	41	40	44	50	54	57	>60	55	40-44	12"x12"
	¾"	CCT	33	35	35	42	44	47	52	58	59	>60	57	45-49	24"x24"
Pin-Perforated	¾"	CCF	29	33	29	34	34	37	42	49	56	58	54	35-39	12"x12"
	¾"	CCT	30	34	31	38	37	42	49	51	>60	>60	>60	40-44	24"x24"
AURATONE FIRECODE Tile															
Fissured	¾"	CCF	31	34	32	39	40	43	49	51	58	>60	>60	40-44	12"x12"
	¾"	ICF	36	38	31	39	41	42	50	55	>60	>60	>60	45-49	12"x12"
Pin-Perforated	¾"	ICF	38	38	36	45	45	48	53	56	>60	>60	>60	45-49	12"x12"
	¾"	ICF	34	37	32	41	42	45	51	57	64	67	65	45-49	12"x12"
Random-Perf.	¾"	CCF	39	38	30	42	41	45	51	55	63	68	64	40-44	12"x12"
AUDITONE Tile	¾"	IC	27	38	33	36	44	47	50	54	54	>60	47	40-44	12"x24"
Random-Perforated (9)															
Fire-Rated PERFATONE Units	2 $\frac{1}{16}$ "	IC	27	33	28	28	33	38	44	50	48	46	34	30-34	12"x24"
Diagonal 1105 (12, 13)															

(Table continued on next page)

product	thick-ness	mount-ing	sound attenuation factors — db																STC	unit size tested	
			band center frequency — Hz																		
			125	160	200	250	315	400	500	630	800	1000	1250	1600	2000	2500	3150	4000			
ACOUSTONE Panels	¾"	CE	27	34	36	29	30	34	36	40	40	42	44	43	44	46	47	40-44	24"x48"		
Fissured Glacier		CE	28	36	38	30	32	36	39	42	42	44	45	46	46	50	48	50	40-44	24"x48"	
AURATONE Panels	¾"	CE	30	40	38	30	29	34	36	40	44	48	52	55	56	56	55	58	40-44	24"x48"	
Fissured			CEa	34	43	40	31	34	39	44	50	55	60	>60	>60	>60	>60	>60	>60	45-49	24"x48"
			CEa	29	38	39	32	32	39	44	49	54	60	60	60	60	60	60	60	40-44	24"x48"
			CEd	29	38	39	36	41	45	50	54	58	60	60	60	60	60	60	60	45-49	24"x48"
			CE	31	40	39	31	30	34	36	40	44	49	53	56	58	58	58	>60	40-44	24"x48"
Pin-Perforated	¾"	CE	31	40	39	31	30	34	36	40	44	49	53	56	58	58	58	>60	40-44	24"x48"	
Texture 093	5/8"	CE	24	33	33	24	24	27	26	28	28	31	35	41	48	53	58	60	30-34	24"x48"	
Texture 210	5/8"	CE	27	33	36	27	28	31	32	35	37	40	43	48	50	52	52	55	35-39	24"x48"	
AURATONE FIRECODE HF Panels Fissured	¾"	CE	30	37	38	31	30	35	34	40	43	47	50	53	55	56	56	57	40-44	24"x48"	
AURATONE Tile Non-Directional Fissured	¾"	CCF	28	35	37	30	31	34	35	37	39	43	48	54	57	56	58	60	40-44	12"x12"	
AURATONE FIRECODE Tile Non-Directional Fissured	¾"	CCF	30	40	38	33	33	38	39	41	44	48	52	57	57	56	56	59	40-44	12"x12"	
HI-LITE Ceiling Panels	5/8"	CE	30	40	40	35	34	40	40	43	44	46	49	49	50	48	45	46	40-44	24"x48"	

NOTE: All surfaces tested were painted. Abbreviations, mountings: IC—concealed suspension system, interrupted at partitions; Ad—adhesively attached; IE—exposed suspension system, interrupted at partitions; CE—exposed suspension system, continuous at partitions; ICF—concealed suspension system, interrupted at partitions, flat splines; CCF—concealed suspension system, continuous at partitions, flat splines; CCT—same as CCF, except with tee splines; CEa—same as CE, but with one layer 1½" Sound Attenuation Blanket placed above ceiling, continuous; CEd—same as CE, but with two layers 1½" Sound Attenuation Blankets placed above ceiling, 4 ft. in each direction from partition. See also Footnotes, below.

Footnotes—Sound Characteristics Tables, pages 28, 29, and 30.

All test results shown are from independent recognized laboratories.

(1) Acoustical ceiling constructions classified by Underwriters' Laboratories, Inc. No. 4351-1—¾" ACOUSTONE "90"—Design 6-1½ Hours.
No. 4351-3—¾" ACOUSTONE "90"—Design 15-1 Hour.

(2) Acoustical ceiling construction classified by Underwriters' Laboratories, Inc. No. 4351-4—¾" ACOUSTONE "120"—Design 41-2 Hours.
No. 4351-7A—¾" ACOUSTONE "120", and MOTIF'D ACOUSTONE "120"—Design 85-2 Hours.

(3) Irregular in thickness but nominally ¾".

(4) Tile penetrated with two slots for AIRSON Tile Air Distribution System.

(5) Tile penetrated with five slots for AIRSON Tile Air Distribution System.

(6) Perforated in a random, pin-hole pattern.

(7) Perforated 445 holes per sq. ft., 97 of ⅜" and 348 of ⅛" dia.

(8) Perforated 323 holes per sq. ft., 188 of ⅜" and 135 of ¼" dia.

(9) Factory painted face and bevels. Also furnished factory painted, with special paint finish giving Class C flame resistance rating.

(10) Perforated 830 holes per sq. ft., 517 of ⅛" and 313 of ⅜" dia.

(11) Acoustical ceiling construction classified by Underwriters' Laboratories, Inc. No. 4739—2⅜" Fire-Rated PERFATONE—Design 49-3 Hours.

(12) Perforated 1105 holes per sq. ft. of .100" dia.

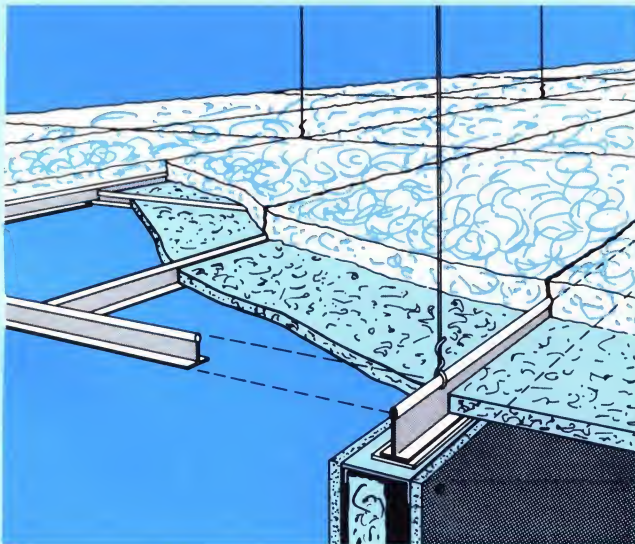
(13) Ceiling tested was continuous at partition.

(14) Assembly includes 1½" THERMAFIBER Flame-Resistant Blankets placed above ceiling, continuous.

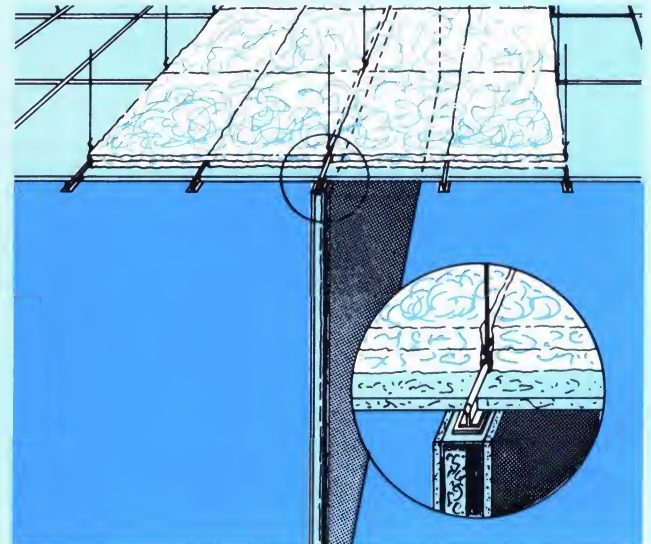
(15) Perforated 437 holes per sq. ft., 98 of ⅜" and 339 of ⅛" dia.

Wool-backed Panel Systems

Mounting CEa—Sound Attenuation Blankets over entire ceiling



Mounting CEd—Double-layer Blankets 4 ft. each side of partition



specifications

notes to architect

1. United States Gypsum recommended contractors are highly trained specialists in the installation and design of U.S.G. sound control systems. They are well-equipped to survey your job, make recommendations and estimates, and help solve functional and esthetic problems that may be encountered. Should the problem be beyond the scope of a U.S.G. contractor, he will recommend a competent acoustical consultant who may advise you.

2. U.S.G. sound control contractors will usually arrange for layouts and detailing for jobs. Architects may, however, prefer to furnish the layouts.

3. U.S.G. acoustical products, except AURATONE FIRECODE HF, are designed for installation and use under standard occupancy conditions of 50°F to 85°F at no more than 80% RH.

The most expedient way to obtain additional information on fire resistance ratings, sound transmission or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 scope—Specify areas to receive this acoustical treatment.

1.1.1 work included (AIRSON)—AIRSON Air Distribution System including acoustical material and suspension system, zoning and sealing of plenum space.

1.1.2 work by others (AIRSON)—Heating and cooling plants including ductwork to plenum zones, wall and ceiling return-air grilles, auxiliary heating and cooling units, electrical fixtures and other equipment to be incorporated in the ceiling suspension systems. All overhead architectural, mechanical, and electrical work shall be completed prior to installation of the system.

1.2 qualifications

Recommendations for construction conditions found in the latest Acoustical & Insulating Materials Assn. Bulletin shall apply.

Acoustical material and suspension systems, including necessary hangers, grillage, splines, and other hardware supporting the acoustical material shall be furnished and installed by a (contractor approved) (AIRSON Contractor licensed) by United States Gypsum Company.

1.3 delivery and storage of materials

All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1.4 environmental conditions

Installation of acoustical tile and panels shall not begin until residual moisture from plaster, concrete or terazzo work is dissipated. Before installation, the building shall be enclosed and permanent heating and cooling equipment in operation.

1.5 design conditions

System shall be rated NRC () in accordance with ASTM C423 and STC () in accordance with AMA-1-II as tested by an independent agency.

Part 2: products

2.1 materials

2.1.1 ACOUSTONE Mineral Acoustical (Tile) (Panels) by United States Gypsum, (Fissured) (Glacier) (Finesse) (Domino) pattern, (white) (ivory) color, $\frac{3}{4}$ " thick, (length x width), (bevel) (square) (shadow line) edge, noncombustible class 25, molded mineral fiber units having natural fissured surface, 18 pcf min. density, (with non-breathing factory-applied aluminum foil backing,) (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.2 MOTIF'D ACOUSTONE Mineral Acoustical Tile by United States Gypsum, (Georgian) (Striated) (Interline) (Fantasia) (Galaxy) (Custom) pattern, (white) (ivory) color, $\frac{3}{4}$ " thick, 12"x12", square edge, noncombustible class 25, molded mineral fiber units having natural fissured surface patterned by brushing, 18 pcf min. density (with non-breathing factory-applied aluminum foil backing,) (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.3 ACOUSTONE (90) (120) (180) Mineral Acoustical (Tile) (Panels) by United States Gypsum, approved for UL Design No. (), () pattern, (white) (ivory) color, $\frac{3}{4}$ " thick, (12"x12") (24"x24"), (square) (bevel) (shadow line) edge, 18 pcf min. density, (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.4 AIRSON ACOUSTONE (120) Mineral Acoustical Tile by United States Gypsum, (approved for UL Design No. (), (Fissured) (Glacier) pattern, (white) (ivory) color, $\frac{3}{4}$ " thick, (length x width), (square) (bevel) edge, noncombustible class 25, ()% A-2 slotted, ()% A-5 slotted, ()% unslotted, factory-applied non-breathing aluminum foil backing, 18 pcf min. density, (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.5 AURATONE Acoustical Tile by United States Gypsum, (Pin-Perforated) (Random) (Fissured) (Snowdrift) (Micro-Perf) pattern, ($\frac{1}{2}$ ") ($\frac{3}{8}$ ") ($\frac{3}{4}$ ") thick, (length x width), (staple flange) (butt bevel) (bevel with kerf) (24"x24" shadow line) edge, noncombustible class 25, mineral fiber ceiling tile, (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.6 AURATONE Acoustical Panels by United States Gypsum, (Pin-Perforated) (Random) (Fissured) (Micro-Perf) (Texture 093) (Texture 210) pattern, ($\frac{3}{8}$ ") ($\frac{3}{4}$ ") thick, (length x width), noncombustible class 25, mineral fiber ceiling panels, (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.7 AURATONE FIRECODE Acoustical Tile by United States Gypsum, approved for UL Design No. (), (Fissured) (Pin-Perforated) (Random) (Micro-Perf) pattern, ($\frac{5}{8}$ ") ($\frac{3}{4}$ ") thick, (12"x12") (12"x24") (24"x24"), (tongue & groove) (bevel) (square) edge, (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.8 AURATONE FIRECODE Acoustical Panels by United States Gypsum, approved for UL Design No. (), (Fissured) (Pin-Perforated) (Random) (Snowdrift) (Micro-Perf) pattern, $\frac{5}{8}$ " thick, (length x width), (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.9 AURATONE FIRECODE HF Acoustical Panels by United States Gypsum, approved for UL Design No. (), capable of withstanding temperature-humidity extremes, (Fissured) (Pin-Perforated) pattern, $\frac{3}{4}$ " thick, (length x width), (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.10 AIRSON AURATONE (FIRECODE) Acoustical Panels by United States Gypsum, (approved for UL Design No. (), (Fissured) (Pin-Perforated) (Snowdrift) (Micro-Perf) pattern, $\frac{5}{8}$ " thick, 24"x(24") (36") (48") (60"), noncombustible class 25, mineral fiber ceiling panels, ()% A-2 slotted, ()% A-5 slotted, ()% unslotted (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.11 AIRSON AURATONE FIRECODE Acoustical Tile by United States Gypsum, approved for UL Design No. (), (Fissured), (Pin-Perforated) (Micro-Perf) pattern, ($\frac{5}{8}$ ") ($\frac{3}{4}$ ") thick, (12"x12") (24"x24"),

(bevel) (tongue and groove) edge, noncombustible class 25 mineral fiber ceiling panels, ()% A-2 slotted, ()% A-5 slotted, ()% un-slotted, (factory-applied acrylic plastic surface coating capable of withstanding 3000 brush and water cycles without breaking in the Gardner Washability Test).

2.1.12 PERFATONE Acoustical Units by United States Gypsum, approved for UL Design No. 49-3 hr., (Square) (Diagonal 1105) (Diagonal 1740) (Needlepoint) (Random) (Unperforated) pattern, ($1\frac{9}{16}$ ") ($2\frac{13}{16}$ ") thick, (12"x12") (24") (36") (48"), noncombustible class 25, (24-ga. steel) (.025" aluminum) pans with mineral fiber sound-absorbent pads supported on formed wire mesh.

2.1.13 AUDITONE Wood Fiber (Tile) (Panels) by United States Gypsum, (Perforated) (Random) (Pin-Perforated) (Fissured) (Snow-drift) (Plain) pattern, ($\frac{1}{2}$ ") ($\frac{3}{4}$ ") thick, (length x width).

2.1.14 (Hi-Lite) (USG Gypsum) Ceiling Panels by United States Gypsum, ($\frac{5}{8}$ ") ($\frac{3}{4}$ ") thick, (24"x24") (24"x48"), noncombustible.

2.1.15 fire-rated suspension—Per UL Design No. ().

2.1.16 concealed spline suspension— $\frac{3}{4}$ " Z-spline spaced 12" o.c., attached to $1\frac{1}{2}$ " channel grillage. Flat metal splines engage adjacent tile.

2.1.17 one-way exposed spline suspension (36")— $1\frac{1}{4}$ " painted Z-spline spaced (specify to 36") o.c., attached to $1\frac{1}{2}$ " channel grillage. Back-to-back angle splines engage adjacent tile to provide (specify %) accessibility to plenum. Tee splines support remaining tile.

2.1.18 one-way exposed spline suspension (48")—Commercially available suspension system meeting "intermediate" (or better) structural standards of "Specifications for Acoustical Tile and Lay-in Panel Ceiling Suspension Systems" published by the Acoustical & Insulating Materials Assn., having main member exposed, supporting acoustical tile on all four sides using appropriate angle or tee splines between adjacent tile.

2.1.19 exposed grid (or shadow line) suspension—Inverted tee, direct hung system meeting "intermediate" (or better) structural standards of "Specifications for Acoustical Tile and Lay-in Panel Ceiling Suspension Systems" published by the Acoustical & Insulating Materials Assn.

2.1.20 metal pan—PERFATONE Tee Runners attached 12" o.c. with wire clips to $1\frac{1}{2}$ " carrying channels spaced 48" o.c. suspended on hanger wires 48" o.c. Acoustical units with mineral fiber pad and pad support in place snap into tee runners. Finish channel molding at wall surfaces.

2.1.21 concealed accessible (shiplap) spline suspension— $1\frac{1}{4}$ " Z-spline spaced 24" o.c., attached to $1\frac{1}{2}$ " channel grillage. Back-to-back angle splines engage adjacent tile to provide (specify %) accessibility to plenum. Tee and angle splines support remaining tile.

Part 3: execution

3.1 suspended—Install acoustical material and suspension system, including necessary hangers, grillage, splines and other hardware supporting the acoustical material in accordance with UL Design No. () and "Specifications for Acoustical Tile and Lay-in Panel Ceiling Suspension Systems".

3.2 adhesive—Apply acoustical material, using an adhesive manufactured specifically for applying acoustical tile, in accordance with adhesive manufacturer's directions. Insert fiber splines in kerfs at corners of units.

3.3 air distribution

a. Attach AIRSON slides to the back side of all except center A-5 tile slots so that air passage through the slots can be controlled from the room side of the tile by means of a pointed instrument without removing the (tile) (panels) from the ceiling.

b. Check all drawings and job conditions and ascertain code or other requirements for covering and sealing the top and sides of the plenum space above the ceiling. Seal the plenum space tight against air leakage. Insulate all walls of the plenum space exposed to outside temperatures with insulation rated at least R-11 installed resistance.

c. Furnish zone barriers and install where shown on drawings. Turn top edge at least 2", coat with adhesive, and permanently hold in place with sheet metal angle fastened securely. Lap all edges at least 2" and cement together. Lap bottom edges at least 3" on the back of the (tile) (panels) and cement directly to the (tile) (panels).

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (asbestos board, paints, metal accessories); ACOUSTONE, MOTIF'D ACOUSTONE, AUDITONE (acoustical tile); AIRSON (ceiling air distribution tile, panels); AURATONE (ceiling panels); FIRECODE (mineral fiber and gypsum boards); PERFATONE (metal pan ceiling units); SHEETROCK (gypsum wallboard); ROCKLATH (plaster base); TEXOLITE (paint products); BAXBORD (gypsum backing board); THERMAFIBER (insulating wool); AIRFLO (metal grid systems); MASTICAL (underlayment compound).

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description and utility

Exterior protection of buildings has been a United States Gypsum specialty ever since the company began manufacturing roofing products, in 1933. USG asphalt roofing offers the protection of rated fire resistance plus the two other characteristics most important to architects—beauty, expressed in harmonious, lasting colors, and durability, promising minimum maintenance for years to come.

Value and dependability are built into these products through the unique U.S.G. quality control standards. Asphalt shingles, for example, are made from top-grade felt that is asphalt-saturated to resist aging and coated with a special stabilized asphalt. Color-fast granules are embedded in the heavy-bodied coating to form a weather-protective shield. A second coating covers the back of the shingle—all carefully controlled to conform to rigid specifications. These manufacturing safeguards are backed by regular testing and constant product improvement at the U.S.G. Research Center, largest and best equipped in the industry.

The wide diversity of types, styles and colors makes it possible to satisfy almost every asphalt roofing requirement. U.S.G. offers differing product lines, tailored to market preferences, in three large geographic areas:

Northeast (states north and east of Virginia, W. Virginia and Ohio)—2-tab Class A and 3-tab shingles, both conventional and self-sealing, in 300-lb., 265-lb. and 235-240-lb. weights; also double coverage and standard lock shingles.

Upper Midwest (Iowa, Minnesota, North Dakota, South Dakota, Nebraska, Wisconsin, northern Illinois, northern Michigan, eastern Montana)—3-tab asphalt shingles in



300-lb. and 235-lb. weights and self-sealing type; also double coverage interlocking shingles.

West (California, Oregon, Washington, Idaho, Utah, Nevada, Arizona, Alaska, Hawaii)—20, 15 and 10-year bonded built-up roof assemblies; 3-tab asphalt shingles in 300-lb. and 235-lb. weights and self-sealing type.

USG asphalt roofing is *made to work together*, economically and compatibly, with other USG exterior materials—poured gypsum concrete roof decks, precast gypsum roof plank, wood fiberboard roof insulation, and wood fiberboard insulating roof deck (West only). The benefit of dealing with a single manufacturer is extended further by incorporating into the job such additional USG exterior products as gypsum or insulating sheathing, exterior stucco, mineral siding, mason's lime, aluminum louvers, and paint products.

types and functions

FIRECODE Class "A" Shingles—being marketed in Northeast region, massive two-tab shingles with highest UL fire rating, applying to three different grades. They also carry UL Wind-Resistant rating because of self-sealing feature—12 spots of high-strength adhesive placed across each shingle to bond firmly to previous course.

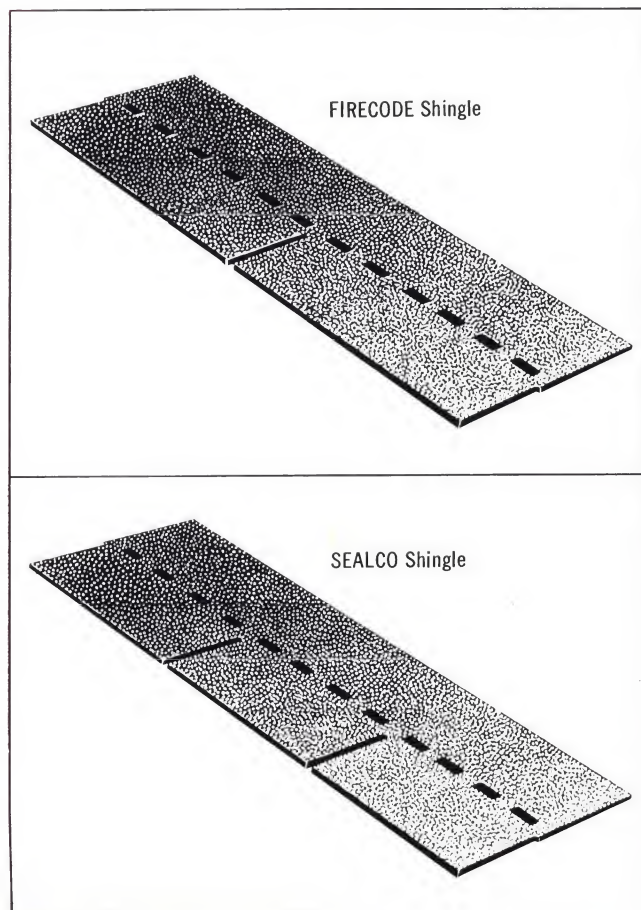
Available in choice of weights: A-15, 220 lbs.; A-20, 240 lbs.; A-25, 295 lbs. All offer economies and superior performance versus many competitive shingles as a result of new manufacturing process. Asbestos and mineral fibers are blended into thick asphalt coating. Offered in color line of solids and blends specially designed for architectural applications. Meet Fed. Spec. SS-S-001534.

SEALCO Self-Sealing Strip Shingles—wherever the requirement is for maximum wind protection or for application to low-pitched roofs, SEALCO self-sealing shingles offer many advantages over ordinary shingles. SEALCO comes with 12 spots of high-strength adhesive placed across each shingle, automatically bonding the tabs to the nailed-down portion of the previous course. This self-sealing action takes place at normal roof temperatures, not limited to extremes of summer heat. SEALCO carries the U.L. Wind-Resistant label.

The placement of SEALCO sealant spots at intervals across the shingle helps the roof to breathe, and prevents trapping of condensation beneath the tabs. Unlike ordinary shingles, no hand sealing is needed on the lower pitches down to 2/12.

Rugged, fire-resistant SEALCO shingles are available in a wide range of beautiful solid and blended colors.

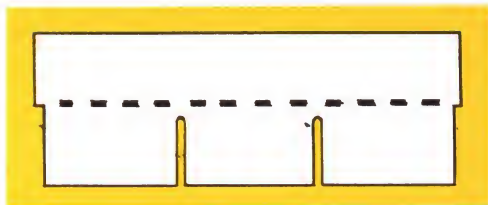
FORTIFIED-300 Strip Shingles (available in West)—one of the finest custom shingles ever made—ideal for churches,



institutions, public buildings as well as custom-built homes. Almost 30% heavier than standard strip shingles, designed to give maximum rugged wear wherever supreme roof quality is desired.

This fire-resistant 300-lb. shingle is built from extra-heavy felt, given a super-thick asphalt coating and a deep layer of extra coarse granules. The result is a rich, massive appearance with deep shadow lines created by the shingle's extra thickness. FORTIFIED-300 offers long-run economy because of its built-in durability to resist high winds, sun, rain and snow. Available in popular solid and blended colors.

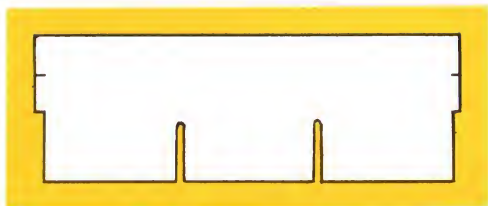
FORTIFIED-300 SEALCO Strip Shingles—(available in Northeast and Upper Midwest)—a durable, extra-heavy custom shingle that combines all features of FORTIFIED 300 with maximum wind protection. Carries U.L. Wind-Resistant label.



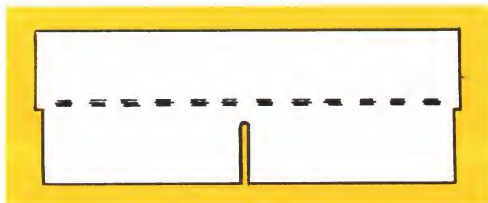
USG 235-lb. Square Butt Strip Shingles—the all-time favorite in roofing shingles of standard weight and design, offering superior quality at economical cost. These classic 12" three-tab shingles blend well with both traditional and contemporary styles of architecture, harmonizing with the texture and tone of exterior walls.

Square Butts (identified as CASCADE Shingles in West) are available in solid, blended and pastel shades. Rock-hard mineral granules give them a lasting full-color brilliance.

For the extra protection and longer life of a triple-coverage roof, USG Square Butts may be applied with a 4-in. exposure in place of the standard 5-in. exposure—done by using built-in alignment guides and increasing quantity by 25%.



2-Tab SEALCO Strip Shingles (available in Northeast only)—huge 18" tabs, 50% wider than in 3-tab roofing, accentuate horizontal roof lines desired in contemporary design. SEALCO self-sealing features provide maximum wind protection, permit use on low-pitched roofs. Carries U.L. Wind-Resistant label.



Specialty Shingles, available in areas of market demand, include lock shingles for high-wind areas—double coverage GRIP-LOCK, standard SUPER-TITE and lighter weight ARRO-LOCK shingles. Others are individual Dutch Lap and Angle Lap shingles, and Hexagon shingles for re-roofing and utility needs.



Asphalt shingle application

USG Asphalt Shingle Roofing—Specifications

product	availability			approx. weight per sq. (1)	dimension (in.)	shingles sq.	exposure (in.)	head-lap (in.)	Underwriters' label
	North-east	Upper Mid-west	West						
FIRECODE Class A	X			295 lbs.	12 x 36	80	5	2	A & W-R
FORTIFIED-300 (1) (2)			X	300 lbs.	12 x 36	80	5	2	C
FORTIFIED-300 SEALCO (1) (3)	X	X		300 lbs.	12 x 36	80	5	2	C & W-R
2-Tab SEALCO (3)	X			235-240 lbs.	12 x 36	80	5	2	C & W-R
SEALCO (3)	X	X	X	235-240 lbs.	12 x 36	80	5	2	C & W-R
235-lb. Square Butt (CASCADE in West) (2)	X	X	X	235 lbs.	12 x 36	80	5	2	C

(1) Coarse granules used. (2) Comply with ASTM D225 Type I and Fed. Spec. SS-S-001534 Type II. (3) Comply with ASTM D225 Type I and Fed. Spec. SS-S-001534 Type III. W-R—wind resistant.

Good Application Practices—when failure of asphalt roofing occurs early in service, the cause is usually poor application or incorrect use of materials. These points should be checked:

(1) **Rigidity of deck.** If not rigid, movements may affect the lay of the roofing. Wood roof deck boards should be properly seasoned 1x6's or exterior grade plywood.

(2) **Ventilation.** Condensation can cause warping and buckling of shingles. This is avoided by proper ventilation—minimum of 1 sq. ft. of free area for every 300 sq. ft. of attic area is recommended. Balanced system should be used, with 50% of lower capacity on or near the roof ridge and remaining 50% divided equally between overhangs.

(3) **Choice of Shingles.** Generally the heavier the shingle, the greater its durability. Self-sealing shingles—such as FIRECODE and SEALCO brands by U.S.G.—are recommended for roof pitches of 4/12 or more. For application on roof slopes down to 2/12, special instructions are available.

(4) **Nailing.** Nails of proper size, length and location should be used for each application (see Specifications).

(5) **Accessories.** Flashing, valleys, rakes, ridges, hips and eaves must be watertight, gutters and downspouts adequately sized for maximum drainage loads.

USG Built-Up Roofing (available in West and Northeast only) comprises a full line of products for use on pitched, curved or level inclines over all common roof decks. U.S.G. also provides specifications and application standards for two classes of roof assemblies incorporating these products:

—**Certified Roofs**, for which U.S.G. furnishes inspection service and issues a Certificate of Compliance (available in West only).

—**Bonded Roofs**, for which U.S.G. provides inspection service and issues a 10, 15 or 20-year surety bond paid for by the owner (available in West only).

The table following lists the recommended USG built-up roof assemblies available in the Western region—a wide choice of gravel surfaced, mineral surfaced and asphalt-coated asbestos roof coverings. USG products used include various grades and types of asphalt felt, asbestos felt, mineral-surface and smooth-surface roll roofing, roofing asphalt, roof coatings and cements, and wood fiberboard USG Roof Insulation. For complete data and specifications, see the USG Built-Up Roofing Manual, form no. RF-34.



Built-up roofing application

USG Built-Up Roof Assemblies—Western Region Only

USG assembly number	years bondable	U.L. roof covering class	roof slope limits	description of assembly	weight (4) in lbs./sq. ft.	
					nailable decks	non-nail- able decks
gravel surfaced roofs						
f-c-1	20	A	0" to 3"	2 layers FIRECODE-33 base sheet; gravel surfacing	5.51	5.61
dl-a-1	20	A	0" to ½"	3 layers specification roofing; gravel surfacing	6.30	6.40
dl-b-1	20	A	0" to ½"	5 layers no. 15 asphalt felt (1); gravel surfacing	6.10	6.05
dg-a-1	20	A	0" to 1"	3 layers specification roofing; double gravel surfacing	7.90	8.00
dg-b-1	20	A	0" to 1"	5 layers no. 15 asphalt felt (1); double gravel surfacing	7.70	7.65
g-a-1	20	A	½" to 3"	3 layers specification roofing; gravel surfacing	6.30	6.40
g-a-2	20	A	½" to 3"	5 layers no. 15 asphalt felt (1); gravel surfacing	6.10	6.05
dl-c-1	15	A	0" to ½"	1 layer specification roofing; 2 layers no. 15 asphalt felt; gravel surfacing	5.80	5.90
dl-d-1	15	A (2)	0" to ½"	4 layers no. 15 asphalt felt (1); gravel surfacing	5.70	5.65
g-b-1	15	A	½" to 3"	1 layer specification roofing; 2 layers no. 15 asphalt felt; gravel surfacing	5.80	5.90
g-c-1	15	A (2)	½" to 3"	4 layers no. 15 asphalt felt (1); gravel surfacing	5.70	5.65
dg-d-1	10	A (2)	0" to 1"	3 layers no. 15 asphalt felt; double gravel surfacing	7.15	7.25
g-d-1	10	A (2)	½" to 3"	3 layers no. 15 asphalt felt; gravel surfacing	5.55	5.65
mineral surfaced roofs						
f-c-5	20	A (5)	0" to 6"	2 layers FIRECODE-40 base sheet; mineral surfaced FIRECODE-90 cap	2.20	2.30
m-a-1	20	A (3)	½" to 6"	2 layers no. 15 asbestos felt; mineral surfaced asbestos felt FORTI-CAP sheet	1.60	1.70
f-c-4	15	B (6)	½" to 6"	1 layer FIRECODE-40 base sheet; mineral surfaced FIRECODE-80 cap	1.45	1.55
m-a-2	15	B	½" to 6"	2 layers no. 15 asphalt felt; mineral surfaced asbestos felt FORTI-CAP sheet	1.60	1.70
f-c-3	10	C	½" to 6"	1 layer FIRECODE-33 base sheet; mineral surfaced FIRECODE-80 cap	1.38	1.48
m-c-1	10	C	1" to 6"	3 layers no. 15 asphalt felt; 1 layer no. 90 ADAMANT cap	2.10	2.20
m-b-1	10	C	1" to 6"	2 layers no. 15 asphalt felt; 1 layer no. 105 BARRIER cap	1.85	1.95
ss-b-1	10	C	1" to 6"	1 layer no. 30 asphalt felt; 2 layers SEL-VI-LAP roofing	1.96	2.06
m-c-2	10	C (7)	2" to 6"	2 layers no. 15 asphalt felt; 1 layer no. 90 ADAMANT cap	1.70	1.80
smooth surfaced asbestos felt roofs						
a-a-1	20	—	½" to 6"	1 layer no. 45 asbestos base sheet; 3 layers no. 15 asbestos felt (1); protective coating	1.85	1.55
a-b-1	15	—	½" to 6"	1 layer no. 45 asbestos base sheet; 2 layers no. 15 asbestos felt; protective coating	1.45	1.55
membrane waterproofing (for concrete decks under concrete floors, asphalt concrete paving and promenade tile)						
mw-e-1	—	—	—	3 layers specification sheet; 1 layer reinforcing fabric; 1 layer ADAMANT cap		3.23
tile underlayment						
tu-e-1	—	—	3" to 6"	2 layers specification roofing	1.05	1.15

(1) Omit one layer no. 15 felt over non-nailable decks. (2) Rating changes to Underwriters' Class B when applied to a wood deck. (3) Additional layer no. 45 asbestos base sheet required for this rating. (4) Weights shown are nominal. (5) Rating applies to 1" max. slope. (6) Rating applies to 1½" max. slope. (7) Rating applies to 3" max. slope.

Underwriters' Label Service—asphalt roofing products bearing UL labels conform to standards as follows: "Class A", effective against severe fire exposures; "Class C", effective against light fire exposures—both classes not readily flammable, do not slip from position, and possess no flying brand hazard; "Wind Resistant", manufactured with factory-applied adhesive or integral locking tabs.

specifications

notes to architect

a. *Fasteners for non-wood deck materials—when gypsum products, concrete plank and tile, fiber board, or similar materials other than wood are used for the roof deck, special fasteners and/or details for fastening are required to provide adequate anchorage for the roofing. In such cases it is recommended that the specifications of the manufacturer of the deck materials be followed in order to insure his responsibility for its performance.*

b. *Warranties apply to FIRECODE Class "A" Shingle as follows: 15-year warranty for 220-lb. shingle, 20-year warranty for 240-lb. shingle, 25-year warranty for 295-lb. shingle.*

I. **scope**—The roofing contractor shall provide labor, materials and equipment necessary for proper installation of asphalt roofing as specified herein, in accordance with application directions furnished by the manufacturer.

II. **roof deck inspection**—Before starting work, the roofing contractor shall examine thoroughly all roof deck areas on which roofing materials are to be applied. The contractor shall report to the architect or owner's agent in writing any defects which he considers detrimental to the proper application of roofing so that defects can be remedied before the roofing is applied.

III. materials

a. **Asphalt Shingle Roofing** shall be: (weight) (FIRECODE) (FORTIFIED-300) (SEALCO) (other) asphalt shingles (color) as manufactured by United States Gypsum Company (specify from page 2).

b. **Asphalt Built-Up Roofing** shall be: (select appropriate specification from USG Built-Up Roofing Manual) as manufactured by United States Gypsum Company.

c. **Nails** shall be: galvanized roofing nails (10 to 12 ga.) with $\frac{3}{8}$ " diam. heads. (Specify length from table following.)

Recommended Nail Length—Wood Decks

purpose	nail length
Roll roofing on new deck.....	1"
Strip or individual shingles—new deck.....	$\frac{1}{4}$ "
Reroofing over old asphalt roofing.....	$\frac{1}{2}$ "
Reroofing over old wood shingles.....	$\frac{3}{4}$ "

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (roofing, fiberboard); FIRECODE, FORTIFIED-300, SEALCO, CASCADE, GRIP-LOCK, SUPER-TITE, ARRO-LOCK, FORTI-CAP, ADAMANT, BARRIER, SEL-VI-LAP (roofing materials).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY and any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

U.S.G. SALES OFFICES: **ALABAMA:** Birmingham, 871-6136 • **ARIZONA:** Phoenix, 274-5461 • **CALIFORNIA:** Fremont, 792-4400; Los Angeles, 388-1171; Sacramento, 481-0383 • **COLORADO:** Denver, 388-6301 • **CONNECTICUT:** Hamden, 212-935-4446 • **FLORIDA:** Jacksonville, 764-2546; No. Miami Beach,

IV. installation

a. **Asphalt Shingles** shall be installed in accordance with United States Gypsum's current directions as printed on shingle wrappers.

(1) **Underlayment**—For slopes of 4/12 and steeper, apply one ply #15 asphalt felt over roof boards with 2" overlap and 6" end laps; scatter nail at 12" staggered intervals.

For slopes of 2/12 to 4/12, apply two plies #15 asphalt felt over roof boards with 19" overlap and 6" end laps; fasten by blind nailing. From eaves to a point 24" beyond inside wall line, cover surface between plies with plastic roof cement.

At valleys, apply 36" wide underlayment strip centered over valley intersection. Lap ends of roofing underlayment at least 6" over valley strip and nail to hold in place.

(2) **Valleys**—Apply 18" wide strip of 90-lb. roll roofing face down and centered over intersection. Bed each side of strip in 3" band of plastic roof cement and nail to hold in place. Lap ends 12" and bed in plastic cement. Apply 36" wide continuous strip of mineral surfaced roofing face up and centered over valley; nail in place.

(3) **Shingle Application**—Begin application with starter strip or inverted shingle. For self-sealing shingles, apply starter course of shingles with tabs cut off. Extend starter strip and first course of shingles at least $\frac{3}{8}$ " over edge of deck. Lay shingles in true, straight courses with 2" overlap, 5" exposure and cutouts at middle of tab on preceding course. Securely attach each shingle with 4 nails spaced 1" from each end, $5\frac{3}{8}$ " above exposed butt and $\frac{5}{8}$ " above each cutout or 3" from cutout for two-tab shingles. At valleys cut off upper corner and cement shingles to valley lining or extend each strip at least 12" beyond center of valley and nail end of strip.

(4) **Hips and Ridges**—Cover hips and ridges with shingles cut in (thirds) (halves) or with individual 9"x12" shingles. Expose 5" to weather; nail $5\frac{1}{2}$ " from exposed end and 1" from each side.

(5) **Metal Edge Strips and Flashing**—Provide metal drip edge over underlayment at all eaves and gable ends. Fasten with nails 10" o.c.

Provide metal flashing at all vertical intersections and penetrations of roof surface before shingles are applied. Install base and cap flashing over shingles. Seal all flashing with plastic roof cement.

b. **Asphalt Built-Up Roofing** (select appropriate specifications from USG Built-Up Roofing Manual).

V. warranties—Contractor shall furnish owner with 5-year Wind Warranty and (15-year) (20-year) (25-year) warranty for asphalt shingles. Warranties shall be registered with roofing manufacturer.

949-3436; Tampa, 253-5325 • **GEORGIA:** Atlanta, 261-8520 • **ILLINOIS:** Chicago, 321-4100 • **INDIANA:** Indianapolis, 546-4777 • **KENTUCKY:** Louisville, 897-2529 • **LOUISIANA:** New Orleans, 241-2874 • **MARYLAND:** Chevy Chase, 654-9004 • **MASSACHUSETTS:** Boston, 241-8900 • **MICHIGAN:** Southfield, 357-2000; Grand Rapids, 459-4477 • **MINNESOTA:** Minneapolis, 929-4626 • **MISSOURI:** Kansas City, 931-1388; Maryland Heights, 872-9172 • **NEBRASKA:** Omaha, 551-6166 • **NEW JERSEY:** Montvale, 212-935-4446 • **NEW MEXICO:** Albuquerque, 268-2457 • **NEW YORK:** Buffalo, 948-3631; Latham, 785-5872; New York, 935-4402; Oakfield, 948-3631 • **NORTH CAROLINA:** Charlotte, 332-5023; Raleigh, 828-5441 • **OHIO:** Cincinnati, 771-3215; Cleveland Heights, 932-5034; Columbus, 451-7710 • **OKLAHOMA:** Oklahoma City, 946-1494 • **OREGON:** Portland, 227-3731 • **PENNSYLVANIA:** Harrisburg, 234-3251; Philadelphia, 525-7630; Pittsburgh, 341-0364 • **TENNESSEE:** Nashville, 254-1928 • **TEXAS:** Dallas, 351-5386; Houston, 675-3136; San Antonio, 824-4534 • **UTAH:** Salt Lake City, 359-3751 • **VIRGINIA:** Arlington, 628-3818; Norfolk, 543-3586; Richmond, 359-4008 • **WASHINGTON:** Bellevue, 455-2595 • **WISCONSIN:** Milwaukee, 476-5920.

description and utility

Lime is universally recognized as the ingredient most essential in producing a good masonry mortar. When properly combined with sand and portland cement, it creates a lime mortar of superior performance and almost ageless durability.

Because of its high plasticity and ability to retain water, lime mortar provides excellent spread and flow under light pressure of the trowel—workability characteristics that assure full uniform mortar joints. The cohesive qualities of lime mortars produce superior bond strength. Lime's unique healing properties are at work constantly, causing mortar and masonry unit to become tenaciously bound together, reducing moisture penetration and helping to prevent efflorescence, leaky walls and frost damage.

United States Gypsum is one of the largest hydrated lime manufacturers and produces four different mason's lime products for versatile and economical mortars, capable of satisfying the most exacting requirements. Following are their chief advantages over the prepared masonry cement types of mortars:

High Plasticity—highly plastic limes impart smooth working qualities to masonry mortar, resulting in more complete filling of joints, more intimate contact and better "keying" between mortar and masonry units.

High Water Retentivity—the lime content of masonry mortar increases water retentivity, which means better mortar bond as well as less retempering of mortar during use.

Strong and Complete Bond—reduces the possibility of leaky walls and efflorescence.

Adequate Strength—USG mason's limes possess sufficient compressive and tensile strength to insure structural integrity of the wall. Refer to Technical Data, page 3, for ASTM specifications and typical mortar performance using USG mason's limes.

Elasticity—mortars using USG lime have the advantage of elasticity that contributes to crack resistance when walls are deflected by lateral wind pressures.

Weather Resistance—the above characteristics insure tight mortar joints which prevent penetration of water. In addition, high-lime mortars undergo a chemical reaction which allows them to "re-knit" or automatically heal small cracks that may develop between the mortar and the masonry unit. Wetting and drying cycles accelerate the gain in strength which continues for a period of years.

Economy—mortars using USG lime reduce initial costs because of their high volume, excellent sand-carrying capacity, superior workability, and minimum waste. They also need little maintenance and thus provide long-range economy.



types and functions

1. Air Entraining MORTASEAL* Mason's Lime

description

This MORTASEAL product is a pressure-hydrated dolomitic mason's lime so formulated that it entrains (traps) air in the mortar when mixed with portland cement and sand. This significant improvement is brought about by a manufacturing process that permits a controlled volume of minute air bubbles to mix with the mortar.

This entrained air goes completely through the mix, and takes the water with it. The result is a mortar that is deeply penetrating and easy to handle, contributing to better masonry construction at lower cost.

Air Entraining MORTASEAL complies with ASTM Standard C207 Type S, and with Federal Specification SS-L-00351 Type M, including the added requirement of not more than 8% unhydrated oxides. It is supplied in a special 3-ply white 50-lb. bag, available in straight or mixed shipments from the U.S.G. Genoa, Ohio and Farnams, Mass. plants.

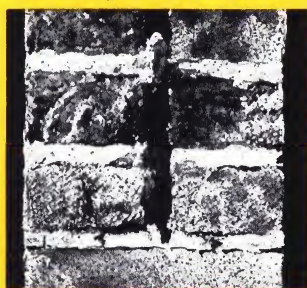
function

Although specifications governing mortar mixing and proportions are the same as for Regular MORTASEAL Mason's Lime, these improved characteristics are available with Air Entraining MORTASEAL:

Better Workability and spread promote good workmanship and increased production—15 minutes from bag to board.

Less Re-Tempering on the job is necessary, due to the material's extended working life. "Shake-up" is needed only once

Harsh mortar is conducive to poor workmanship and unfilled joints.



Good mortar encourages good workmanship and well-filled joints.



A high-plasticity mortar made with USG lime flows with light pressure and encourages good workmanship.



*Reg. U.S. Pat. Off.



an hour—not two or three times. This makes a mortar particularly suited for hot weather construction.

Longer-Lasting Bond results from deeper penetration of this more fluid mortar. Air Entraining MORTASEAL absorbs vibration and stress without cracking.

Lower Costs—requires no slaking or soaking; resists suction, even from dry concrete products, permitting ample time for striking joints; thus speeds work and reduces costs. Where specifications permit, an increased volume of sand (approx. $\frac{1}{2}$ cu. ft.) may be carried without sacrificing workability. In high-rise structures, contractors using Air Entraining MORTASEAL have produced further economies by pumping the mortar to points as high as 185 ft.—a difficult task with other mixes.

limitation

Air Entraining MORTASEAL Lime should not be used with other air entraining cementitious materials in the same mortar mix.

2. Regular MORTASEAL Mason's Lime

description

This double hydrated product is the standard of the industry among mason's limes designed for mixing with portland cement, sand and water. As manufactured at the U.S.G. Genoa, Ohio plant, it is a dolomitic lime requiring no soaking; as produced at the U.S.G. Farnams, Mass. plant, it is an immediate-soak high calcium lime.

Regular MORTASEAL Mason's Lime meets the following standards: ASTM C207 Type S, Federal Specification SS-L-00351 Type M, including the added requirement of not more than 8% unhydrated oxides; National Lime Association Type S. It is supplied in 50-lb. bags.

function

Plasticity—MORTASEAL develops exceptional plasticity and workability immediately upon mixing with water—either by machine or by hand. This permits a mortar of excellent working qualities conducive to good workmanship and water-resistant joints.

Water Retentivity—mortar mixes of 1:2½:9 with MORTASEAL lime, as shown in data table, produce the unusually high "flow after suction" (water retentivity) of 93%. They exhibit superior working qualities regardless of high or uneven suction; thus provide a more complete, strong, uniform bond with masonry units. The need for retempering is minimized.

Low Volume Change—because of the 92% hydration of MORTASEAL, volume change due to unhydrated material is negligible. Average putty yield is 40 to 50 cu. ft. per ton.

Strength, Economy—a 1:2½:9 mix of portland cement, MORTASEAL and sand complies with ASTM strength requirements for Type N mortar, yet is one of the lowest-cost mortars.

It permits high sand-carrying capacity with consequent maximum mortar yield.

In addition to its use in masonry mortar, MORTASEAL strengthens exterior stucco when used as an ingredient in the basecoat; contributes water resistance to the back-up basecoat for ceramic tile.

3. RED TOP* Mason's Hydrated Lime

description

This normal hydrated lime, either dolomitic or high calcium, imparts smooth working qualities to portland cement-lime and sand mortar by increasing its plasticity and water-retention properties. To develop full plasticity and complete hydration, however, it is necessary to soak this type of lime overnight.

RED TOP Mason's Lime complies with ASTM Standard C207 Type N, Federal Specification SS-L-00351 Type M, and National Lime Association specification Type N. Supplied in 50-lb. bags.

function

Plasticity—properly soaked Mason's Hydrated Lime has a sufficiently high plasticity to provide excellent working characteristics in masonry mortar.

Water Retentivity—"Flow After Suction" with a 1:1¼:6 and 1:2½:9 mix exceeds 70%, the minimum ASTM requirement, which gives the mortar excellent bonding qualities to adequately resist high or uneven suction in the masonry units. This lime provides adequate strength with low volume change; average putty yield is 45 to 50 cu. ft. per ton.

limitations

1. Must be soaked at least 16 hours to develop a satisfactory plasticity and the required degree of hydration.

4. RED TOP Mason's Quicklime

description

Manufactured in pulverized form, this is a quicklime of uniform quality, high putty yield, and excellent plasticity. It substantially improves the working qualities and sand-carrying capacity of masonry mortars. Quicklimes, however, should be slaked at least 16 hours and properly cooled before using.

Under certain job conditions, additional slaking time will improve plasticity.

RED TOP Mason's Quicklime complies with ASTM Standard C5 and Federal Specification SS-Q-351 Type M. It is supplied in 80-lb. and 100-lb. waterproof bags.

function

Properly slaked and aged, RED TOP Mason's Quicklime develops into a putty of adequate strength and low volume change. Other features:

Plasticity—generally, this product in a mortar exhibits the highest plasticity and easiest working qualities of any type of mason's lime.

Water Retentivity—a 1:2½:9 mix shows "flow after suction" of 89%.

High Yield—produces over 50% more putty volume than hydrated limes.

limitations

1. For best results, quicklime must be of recent manufacture to avoid air slaking in container.
2. Must be handled carefully to avoid burning.
3. Must be properly slaked and aged at least 16 hours, or until the putty cools to 80° F.

technical data

ASTM C270 Specifications

physical properties			proportions by volume		
mortar type	min. avg. comp. strength—psi 28 days	water retention % min.	portland cement (1)	lime (2)	sand (3)
M	2500	70	1	¼	2.8 to 3¼
S	1800	70	1	¼ to ½	2.8 to 4½
N	750	70	1	½ to 1¼	3.4 to 6¾
O	350	70	1	1¼ to 2½	5.1 to 10½
K	75	70	1	2½ to 4	7.9 to 15

NOTES: (1) Portland Cement—To comply with ASTM C150, Type I, II, or III; or ASTM C175, Type 1A, 1IA, or 1IIA. (2) Lime—To comply with ASTM C5 (Quicklime) or ASTM C207 (Hydrated) Type N or S. (3) Sand Aggregate—To comply with ASTM C144.

Recommended Cement-Lime Mortars For Specific Masonry Types Source: N.R.C.—8035

type of masonry unit	ratio of cement to lime in mortar ¹	equiv- alent ASTM type	source of recom- menda- tion ²	remarks on use
clay brick or clay tile	1:¼	M	1	For masonry below grade and in contact with earth.
	1:½ to 1¼	N	1	For general use in exposed masonry above grade.
	1:1¼ to 2½	O	1	For general interior use.
	1:2	O	2	Exterior walls, moderate exposure, spring and summer construction.
	1:1	N	2	Exterior walls, severe exposure conditions, all season construction.
	1:2 1:3	O K	2 2	Interior walls and partitions, spring and summer construction.
	1:2 1:2	N O	2 2	Interior walls and partitions, autumn and winter construction.
concrete brick, concrete block, or & sand-lime brick	1:1	N	2	Exterior walls, severe exposure conditions, all season construction.
	1:2 1:3	O K	2 2	Interior walls, spring and summer construction.
	1:1 1:2	N O	2 2	Interior walls, autumn and winter construction.
	1:1 to 1¼	N	3	For general use in exposed masonry above grade.
	1:0 to ¼ 1:¼ 1:¼ to ½	M M S	3 4 4	For heavy loading, severe frost action.
porous limestone or sandstone	1:3	K	2	For general use in exposed masonry above grade.
dense limestone or sandstone	1:1	N	2	

1. Ratio of cementitious material (cement plus lime) to sand generally lies between 1:2¼ and 1:3 by volume. 2. Sources:

- (1) Structural Clay Products Institute. Technical Notes on Brick and Tile Construction, No. 8. Washington, D.C.: the Institute, 1961.
- (2) Building Research Station of Great Britain. Mortar for Brickwork, Block Construction and Masonry. Bulletin No. 8. London: the Station, 1959.
- (3) Portland Cement Association. Concrete Masonry Handbook for Architects, Engineers, Builders. Chicago: the Association, 1960.
- (4) Concrete Masonry Association of California. Concrete Masonry Design Manual, 1955.

Average Test Results

Air Entraining MORTASEAL Mason's Lime					Regular MORTASEAL Mason's Lime		RED TOP Mason's Hydrated Lime		RED TOP Mason's Quicklime	
mortar type	job proportions (1) by volume	comp. strength— psi 28 days	water retention —% (2)	entrained air —% (3)	comp. strength— psi 28 days	water retention —% (2a)	comp. strength— psi 28 days	water retention —% (2a)	comp. strength— psi 28 days	water retention —% (2a)
M	1:¼:3¼	—	—	—	4924	69.0	4277	62.8	—	66.7
S	1:½:4½	—	—	—	3154	70.4	—	—	—	—
N	1:1¼:6	1800	89	8	2150	80.6	1953	77.2	1420	87.5
N	1:1¼:6¾	—	—	—	1750	78.0	—	—	—	—
O	1:2½:9	850	95	8	916	93.3	853	85.6	550	89.0
O	1:2½:10½	—	—	—	663	78.0	—	—	—	—
K	1:4:15	—	—	—	203	88.3	203	88.3	—	82.0

NOTES: (1) Portland cement to mason's lime to damp loose sand. (2) Based on mortars having an initial flow of 100%. (2a) Based on mortars having an initial flow between 100% and 115%. Fineness 85% minimum through #200 mesh. (3) Based on mixes prepared with Portland Cement complying with ASTM C150, Type I, II, & III only.

specifications

notes to architect

a. *The provisions following are offered as desirable inclusions in any masonry specification, but are not necessarily intended as a complete section covering masonry specifications.*

b. *Generally, masons figure a 94-lb. bag of Portland cement and a bag of hydrated lime as each equalling one cu. ft., and would add 6 cu. ft. of sand to make a 1:1:6 mix. Actually a bag of hydrated lime is equivalent to about 1¼ cu. ft.*

I. general provisions—All masonry materials shall be at above-freezing temperatures when placed.

Masonry shall be protected against freezing for at least 48 hours after placing. Unless such precautions against freezing are taken, no masonry shall be erected when temperature is below 32° F. on a rising temperature, or below 40° F. on a falling temperature. No masonry shall be laid on walls or footings that are frozen or contain frost.

II. mortar materials

a. Lime shall be:

(Air Entraining MORTASEAL Mason's Lime)

(Regular MORTASEAL Mason's Lime)

(RED TOP Mason's Hydrated Lime)

(RED TOP Mason's Quicklime)

—as manufactured by the United States Gypsum Company.

b. **Portland Cement** shall comply with ASTM C150, Type I, II or III.

c. **Sand** shall comply with ASTM C144.

d. **Water** used in mixing shall be clean and free of deleterious amounts of acids, alkalies, or organic materials.

III. mortar preparation—(Air Entraining MORTASEAL, as furnished in original containers, shall be machine mixed with other mortar ingredients, adding sufficient water only to produce desired mortar plasticity.)

(MORTASEAL shall be mixed without soaking or slaking.)

(RED TOP Mason's Hydrated Lime shall be soaked at least 16 hours before using.)

(RED TOP Mason's Quicklime shall be slaked and aged for at least 16 hours, or until the putty has cooled to a temperature of 80° F. or less.)—all preparations shall follow manufacturer's directions.

IV. mortar proportions

a. **Above Grade**—Mortar made from materials complying with the above specifications shall be mixed in proportion of one bag Portland cement, two bags lime (or two and one-half cubic feet quicklime putty), to not more than ten and one-half cubic feet sand (1:2½:10½).

b. **Below Grade**—Mortar made from materials complying with these specifications shall be mixed in proportion of one bag Portland cement, one bag lime (or one and one-quarter cubic feet quicklime putty), to not more than six and three-fourths cubic feet of sand (1:1¼:6¾).

c. **Stucco Basecoat**—MORTASEAL Mason's Lime in 1:2:7½ proportion for scratch coat; apply in full ⅜" coat, cross rake, cure by spraying with water for several days; add 2 lbs. fiber or hair for application over stucco mesh or metal lath. For brown coat, use MORTASEAL in 1:2:9 mix; apply a full ⅜" coat over dampened scratch coat, darby level and leave rough, using broom if necessary; cure by spraying periodically with water for several days. For finish coat, use ORIENTAL Exterior Stucco according to manufacturer's directions (see U.S.G. Gypsum Plasters Product Folder, this series).

d. Specialized Uses—

(1) For extra strength, reduce proportion of sand, or use 1:2½:8 or 1:1¼:5 mix.

(2) For extreme strength or under excessive moisture conditions, use a reduced lime content, or 1:¼:3 mix.

(3) For glass block, use 1:1:4, or 1:1:5 mix.

(4) For power plant chimneys, use 1:2:5 mix.

(5) For ceramic tile, use 1:1:6 mix.

V. workmanship

Note to Architect: Detailed workmanship specifications will vary, depending on type of job and building units involved. However, it is suggested that on all masonry work, the following be incorporated.

a. Mortar shall be laid in a uniform bed without furrows, and all joints shall be completely filled. Sufficient mortar shall be placed in mortar beds and in head and collar joints to completely fill all spaces between masonry units.

b. Highly absorbent brick shall be wetted (not soaked) before laying.

c. Mortar materials shall be accurately proportioned and thoroughly mixed. Re-tempering with additional water shall be kept to a minimum. Mortar which has been mixed for more than two hours shall be discarded.

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: USG (lime and other products); MORTASEAL and RED TOP (mason's lime); ORIENTAL (exterior stucco).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY and any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

U.S.G. SALES OFFICES: **ALABAMA:** Birmingham, 871-6136 • **ARIZONA:** Phoenix, 274-5461 • **CALIFORNIA:** Fremont, 792-4400; Los Angeles, 388-1171; Sacramento, 481-0383 • **COLORADO:** Denver, 388-6301 • **CONNECTICUT:** Hamden, 212-935-4409 • **FLORIDA:** Jacksonville, 764-2546; No. Miami Beach,

949-3436; Tampa, 253-5325 • **GEORGIA:** Atlanta, 261-8520 • **ILLINOIS:** Chicago, 321-4100 • **INDIANA:** Indianapolis, 546-4777 • **KENTUCKY:** Louisville, 897-2529 • **LOUISIANA:** New Orleans, 241-2874 • **MARYLAND:** Baltimore, 355-2200 • **MASSACHUSETTS:** Boston, 241-8900 • **MICHIGAN:** Southfield, 357-2000; Grand Rapids, 459-4477 • **MINNESOTA:** Minneapolis, 927-9911 • **MISSOURI:** Kansas City, 931-1388; Clayton, 721-1133 • **NEBRASKA:** Omaha, 551-6166 • **NEW JERSEY:** Montvale, 212-935-4404 • **NEW MEXICO:** Albuquerque, 268-2457 • **NEW YORK:** New York, 935-4402; Oakfield, 948-3631 • **NORTH CAROLINA:** Charlotte, 332-5023; Raleigh, 828-5441 • **OHIO:** Cincinnati, 771-3215; Cleveland Heights, 932-5034; Columbus, 451-7710 • **OKLAHOMA:** Oklahoma City, 525-6645 • **OREGON:** Portland, 227-3731 • **PENNSYLVANIA:** Philadelphia, 724-9335; Pittsburgh, 341-0364 • **TENNESSEE:** Nashville, 254-1928 • **TEXAS:** Dallas, 351-5386; Houston, 675-3136; San Antonio, 824-4534 • **UTAH:** Salt Lake City, 359-3751 • **VIRGINIA:** Arlington, 628-3818; Norfolk, 543-5586; Richmond, 359-4008 • **WASHINGTON:** Seattle, 282-8292 • **WISCONSIN:** Milwaukee, 476-5920.

CONCORDE shingles

product folder





Colonial Beige



Valley Green



Autumn Gold



Salem Red



Avocado



Antique Gray *



Cedar Brown *



Birch White



* Exclusive! These two colors have the appearance of weathered silvery gray wood — and weathered natural cedar brown, respectively.

description

CONCORDE Shingles offer beautiful, durable, weather-resistant exterior surfaces for vertical sidewalls and steeply-sloped mansard roofs on apartments, residences, and light commercial buildings. These shingles combine the rich texture of hand-split wood shakes with the high performance of an engineered and precision-fabricated product.

CONCORDE Shingles have a deep distinctive grain and a rough-hewn split shake pattern when applied. Deeply embossed vertical lines give each shingle the appearance of three random-width shakes with authentic staggered butts. Available in eight attractive colors and sealed with baked-on acrylic polymer plastic finish. The 27 $\frac{5}{16}$ -in. wide units are quickly applied with special corrosion resistant, annular ring nails supplied with the shingles.

technical data

Weight per square	225 lbs.
Dimensions	14 $\frac{1}{4}$ " x 27 $\frac{5}{16}$ "
Thickness	$\frac{3}{8}$ "
Top lap	1 $\frac{1}{2}$ "
Exposure	12 $\frac{3}{4}$ "
Pieces per square	42
Thermal Resistance (R)	0.29

function and utility

Fire Resistance—Made with a noncombustible mineral base, CONCORDE Shingles protect against smoldering embers, flying brands and fallen electrical wires.

Weather Protection—CONCORDE Shingles effectively protect buildings from ice, snow, rain, have a high-impact surface to resist damage from hail; are highly warp and crack resistant, non-metallic, non-corrosive; unaffected by normal seasonal changes in temperature and humidity.

Lasting Beauty—Super-tough plastic finish is virtually maintenance free; resists blistering, peeling, checking and uneven fading.

Warranted Service—CONCORDE Shingles are backed by a 20-year weathertight warranty and a 10-year color warranty (see page 4).

limitations

1. Minimum roof slope: 75°
2. Certain recommendations concerning bases for application, underlayment and weather-protection must be adhered to for satisfactory performance (see Specifications).

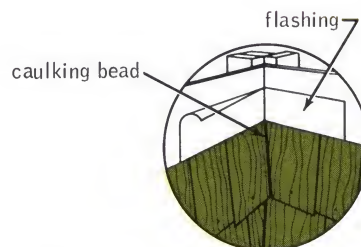
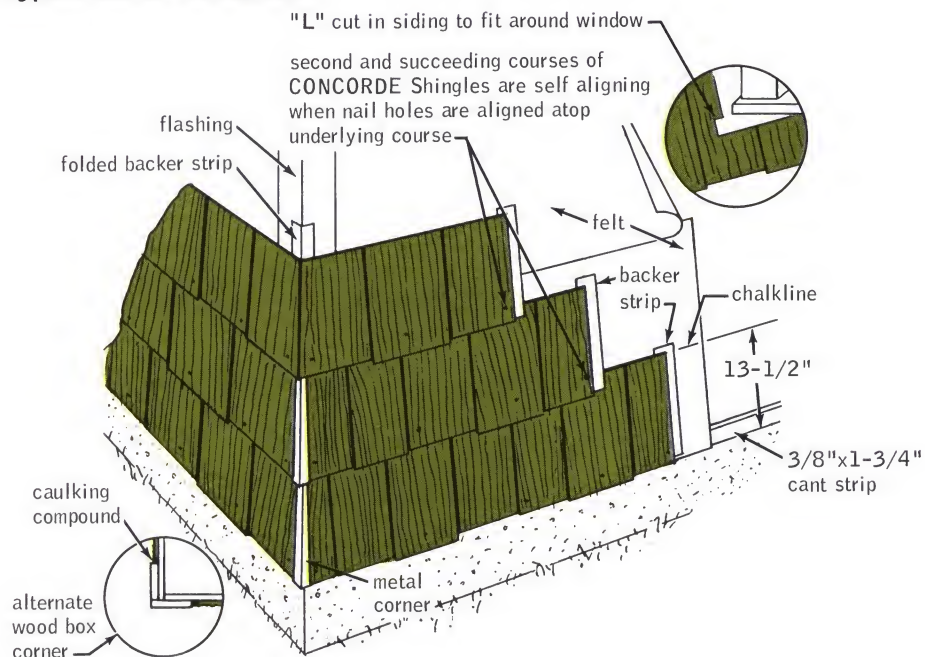
specifications—notes to architect

1. Approved Bases—A smooth, firm nailing base is required for application of CONCORDE Shingles. On sidewalls, sheathing may be 1" (nom.) lumber, $\frac{1}{2}$ " plywood, $\frac{1}{2}$ " USG Super-Strength Insulating Sheathing or FIRECODE Gypsum Sheathing. When FIRECODE Sheathing is used, attach 1x3 horizontal wood strips 12 $\frac{3}{4}$ " o.c. over sheathing as a nailing base. On mansard roofs, sheathing should be $\frac{1}{2}$ " plywood; except with framing 16" o.c., 1x4 wood strips spaced 12 $\frac{3}{4}$ " o.c. and nailed or securely attached to framing may be used.

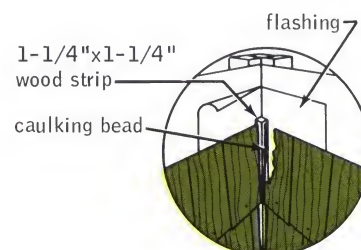
2. Underlayment—To resist air and water infiltration, sheathing should be covered with an underlayment before applying shingles. For sidewalls, use one layer #15 asphalt felt. For mansard roofs, use two layers #15 asphalt felt or one layer 50-lb. smooth roll roofing or base sheet having asphalt coating both sides. With FIRECODE Sheathing, underlayment may be omitted on sidewalls. On mansard roofs with wood strips, asphalt coated underlayment should be used with 6" vertical laps and 6" horizontal laps occurring over strips. A vapor barrier or installation against a metallic surface or tar-saturated felt is not recommended.

3. Weather Protection—Flashing, valleys, rakes, ridges, hips and eaves must be watertight, with gutters and downspouts adequately sized for maximum drainage loads. For mansard roof application, (a) $\frac{3}{8}$ " x 1 $\frac{1}{4}$ " wood cant strip should be slotted for drainage; (b) intersecting shingled roofs with pitches of 4 in 12 to 2 in 12 should be provided with underlayment of two layers #15 asphalt felt cemented together, with first course extending down at least 12" over underlayment on mansard roof; (c) intersections

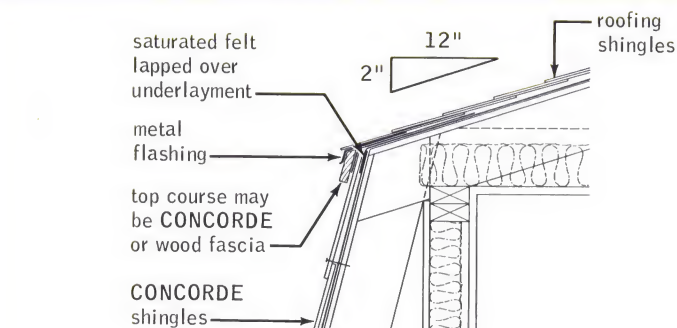
typical corner construction



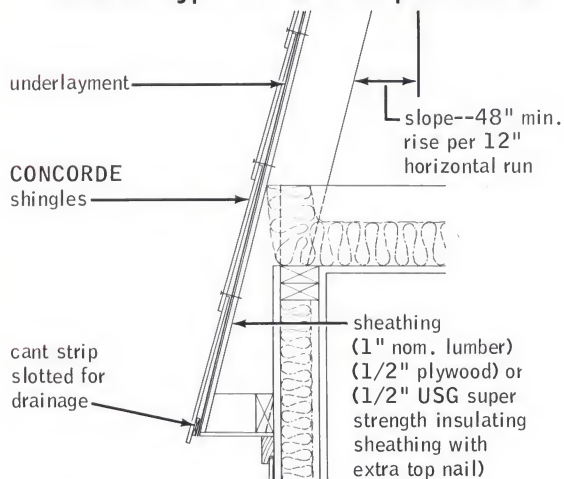
woven corner (optional)



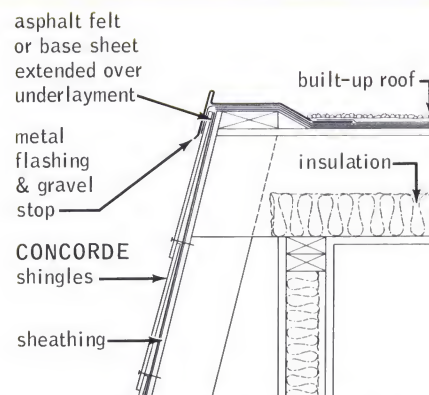
jointed corner (optional)



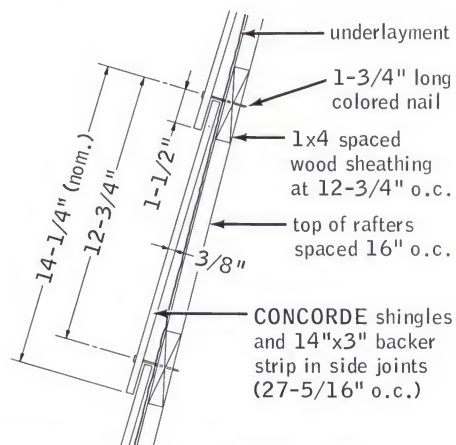
mansard type side roof with pitched deck



mansard type side roof



mansard type side roof with flat deck



application over spaced sheathing

specifications (continued)

with pitched shingle roof should be provided with metal flashing extending 8" under roof and CONCORDE shingles; (d) a metal flashing and gravel stop should be provided at intersections with flat roof (see details, page 3); (e) all flashings should be securely fastened to resist wind damage.

4. Venting — All enclosed spaces beneath roof construction should have outside venting. Such venting by small louvers or openings does not appreciably affect attic temperatures. Refer to ASHRAE Guide (Chap. 10 and 12) for complete information.

The most expedient way to obtain additional information or details not covered in this publication is to direct inquiries to UNITED STATES GYPSUM sales offices.

Part 1: general

1.1 scope—Specify as required to suit job conditions.

1.2 qualifications

a. Installation shall be by workmen experienced in this trade.
b. All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company and shall be installed in accordance with its current printed directions.

1.3 warranties

Contractor shall furnish owner with a 20-year Weathertight Warranty and a 10-year Color Warranty for the mineral shingles. Warranties shall be registered with shingle manufacturer.

1.4 delivery and storage of materials

All materials shall be delivered in their original unopened packages. Materials shall be stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged materials shall be removed from the premises.

1.5 environmental conditions

Surfaces to be shingled shall be dry and free of frost and ice.

1.6 protection

Temporary asphalt felt flashing strips shall be installed to protect top course of shingles at the completion of a day's work.

Part 2: products

2.1 Mineral Shingles: CONCORDE Shingles, $\frac{3}{8}$ " thick, $14\frac{1}{4}$ " wide, $27\frac{1}{16}$ " long, with baked-on acrylic polymer finish (color), 14 "x 3 " backer strips, $1\frac{3}{4}$ " colored face nails.

2.2 Metal Corners: CONCORDE Corners, $14\frac{1}{4}$ " long (color) to match CONCORDE Shingles.

2.3 Underlayment: (USG #15 Asphalt Felt) (50-lb. IMPERIAL Smooth Roll Roofing) (USG Specification Roofing).

Part 3: execution**3.1 sidewall application****3.1.1 preparation**

Cover sidewall surface with #15 asphalt felt underlayment, lapped 4" on sides and ends and fastened with nails or staples. Underlayment may be omitted when gypsum sheathing is used.

Apply a 12" underlayment strip vertically around all inside and outside corners. Center the width of the strip at the corner and nail or staple in place.

Paint and caulk inside and outside wood corners and moldings.

3.1.2 shingle installation

Install $\frac{3}{8}$ "x $1\frac{3}{4}$ " wood cant strip over joint between sheathing and foundation. Apply shingles with $1\frac{1}{2}$ " head lap and $12\frac{3}{4}$ " exposure. Place backer strips behind joints so strips overlap lower course $\frac{3}{4}$ " and are held in place by a face nail. Fasten full shingles with three color-matched nails supplied with the shingles. Fasten cut shingles with at least two nails. With high-density wood fiber sheathing, drive an additional nail 1" below top edge of shingle into stud framing. Apply succeeding courses uniformly level with vertical joints staggered.

Install flashing or drip moulding above all doors and windows and provide a drip edge along the base of all openings. Cut shingles accurately for a tight fit at all windows, doors and intersections with trim. Set cut unprotected ends of shingles into a narrow bead of caulking compound. When metal corners are used, position corner over accurately aligned abutting shingles and fasten corner with nails driven through holes at top.

3.2 mansard roof application**3.2.1 preparation**

Cover mansard deck surface with #15 asphalt felt underlayment applied shingle fashion with 19" overlap, 17" exposure and 6" end laps. When 50-lb. smooth roll roofing or asphalt coated base sheet is used for underlayment, cover deck surface shingle fashion with 30" exposure, 6" headlap and 6" end laps. Nail or staple underlayment in place.

Cover surface of 1x4 wood strips $12\frac{3}{4}$ " o.c. with asphalt coated underlayment applied shingle fashion with at least 6" headlap occurring over strips and 6" end lap. Nail or staple in place.

Install a 12" underlayment strip at all hips and valleys. Center strip at intersection and nail or staple in place.

Where flat or sloping roofs join mansard roof surfaces, extend underlayment 12" over curb or break onto mansard surface.

3.2.2 shingle installation

Install $\frac{3}{8}$ "x $1\frac{3}{4}$ " slotted wood cant strip at eaves edge of roof. Apply shingles with $1\frac{1}{2}$ " headlap and $12\frac{3}{4}$ " exposure. Place backer strips behind joints so strips overlap lower course $\frac{3}{4}$ " and are held in place by a face nail. Fasten full shingles to sheathing with three color-matched nails supplied with the shingles. Fasten cut shingles with at least two nails. Apply succeeding courses uniformly level with vertical joints staggered.

At valleys, cut ends of shingles accurately, interlock alternate courses and set unprotected ends of shingle into caulking compound. Where intersecting courses do not match, install suitable metal flashing beneath shingles. Install metal corners at hips, aligning abutting shingles accurately and fastening corners with nails driven through pre-punched holes at top. Provide a drip edge and caulk joints beneath shingles and sheathing or fascia at rake ends. Install suitable flashing over last course of shingles and at all intersections with vertical walls.

20-YEAR WARRANTY

UNITED STATES GYPSUM COMPANY warrants unto the owner names as the registered holder of this certificate, subject to the conditions set forth below, that CONCORDE SHINGLES, as manufactured and sold by the UNITED STATES GYPSUM COMPANY, when installed or applied in accordance with its printed specifications, will provide protection and weather-tightness of the sidewall and mansard roof twenty (20) years from the date of installation or application. Subject to the conditions set forth below, UNITED STATES GYPSUM COMPANY will, at its option, make or cause to be made at its own expense the necessary repair or replacement of any CONCORDE SHINGLES (excluding flashings, trim or other concomitant materials), which are found to have been defective when manufactured.

10-YEAR WARRANTY

UNITED STATES GYPSUM COMPANY warrants unto the owner named as the registered holder of this certificate, subject to the conditions set forth below, that CONCORDE SHINGLES, as manufactured and sold by the UNITED STATES GYPSUM COMPANY, will not blister, crack, change color non-uniformly or peel for ten (10) years from the date of installation or application. Subject to the conditions set forth below, UNITED STATES GYPSUM COMPANY will, at its option, make or cause to be made at its own expense the necessary repair or replacement of any CONCORDE SHINGLES which have suffered surface deterioration under normal conditions of exposure (and not from physical contact of any extraneous element).

The foregoing obligations are limited by the following further conditions:

1. The registered owner shall give UNITED STATES GYPSUM COMPANY written notice of any claim by registered mail at its general offices, 101 South Wacker Drive, Chicago, Illinois, within thirty (30) days immediately following the discovery of the need for any repairs covered by this warranty.
2. UNITED STATES GYPSUM COMPANY reserves the right to make such investigations as it may consider necessary upon receipt of notice of complaint, and to approve any action to repair, replace or repaint before such action is undertaken.
3. UNITED STATES GYPSUM COMPANY shall not be liable for any damage to the CONCORDE SHINGLES caused by improper application of said shingles, or if said shingles are not installed or applied in accordance with the specifications of UNITED STATES GYPSUM COMPANY supplied with said shingles.
4. UNITED STATES GYPSUM COMPANY shall not be liable for any damage to said shingles resulting from settling, distortion, warping or other damage to or destruction (in whole or in part) of walls, foundations or other parts of the buildings or structure (occurring either before or after said shingles have been applied), or from any defect or failure in any sheathing or base to which said shingles are applied.
5. After application of shingles, no liability shall attach to UNITED STATES GYPSUM COMPANY if any additional alterations, installations, openings or structures are made therein or applied thereon.
6. UNITED STATES GYPSUM COMPANY'S LIABILITY HEREUNDER SHALL BE LIMITED IN ALL EVENTS TO THE FOLLOWING: (a) DURING THE FIRST YEAR OF THE WARRANTY PERIOD, IN AN AMOUNT NOT TO EXCEED THE SALES PRICE FOR THE CONCORDE SHINGLES DESCRIBED HEREIN; (b) FOR EACH SUCCESSIVE YEAR DURING THE WARRANTY PERIOD, THE LIABILITY SHALL BE DECREASED PROPORTIONATELY TO THE UNEXPIRED TERM OF THE WARRANTY.
7. THE FOREGOING WARRANTY SHALL CONSTITUTE THE SOLE AND EXCLUSIVE REMEDY OF THE OWNER NAMED AS THE REGISTERED HOLDER OF THIS CERTIFICATE, AND IS IN LIEU OF AND EXPRESSLY EXCLUDES ALL OTHER WARRANTIES NOT EXPRESSLY SET FORTH HEREIN, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS. UNITED STATES GYPSUM COMPANY SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL LOSS, DAMAGE OR EXPENSE, DIRECTLY OR INDIRECTLY ARISING FROM THE SALE, HANDLING OR USE OF ANY SUCH CONCORDE SHINGLES OR FROM ANY OTHER CAUSE RELATING THERETO, WHETHER THE CLAIM IS FOR BREACH OF WARRANTY OR NEGLIGENCE. UNITED STATES GYPSUM COMPANY NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT, ANY OTHER OR ADDITIONAL LIABILITY OR RESPONSIBILITY IN CONNECTION WITH CONCORDE SHINGLES.

This Warranty becomes effective only if the Registration form attached hereto is completed and mailed to UNITED STATES GYPSUM COMPANY within ten (10) days of job completion. In any correspondence, please refer to the Certificate number.

TRADEMARKS: The following trademarks are owned and/or registered in the U. S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: CONCORDE (shingles); FIRECODE (sheathing); IMPERIAL (roofing).

Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY, and any other warranties, express or implied, made in connection with the sale of these products and systems, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS these products and systems are applied according to our current printed directions and specifications.

USG[®] expanded metals for architecture

is
141

product folder



Design Unlimited for
FASCIA PANELS,
BALCONY RAILINGS

UNITED STATES GYPSUM
1971-1

5
ORNAMENTAL METAL
ornamental grilles



Lakeview Baptist Church, New Orleans, La.

FASCIA PANELS for new construction—Decorative qualities, coupled with directional properties, make expanded metal ideally suited to new construction design. Used in the exterior design of a new building, these are materials of imagination, in patterns ranging from bold to delicate, classic to informal—all created to give your imagination free rein. Strength and durability count, too, as do light weight, ease of handling, and low cost. But the best thing about USG Expanded Metals is what you can do with them.

for sunshading — Always regarded as a vital function of architecture in the South and Southwest. But now, with the increasing use of exterior walls of glass, and with striking design features of USG Expanded Metals, sunshading has become a design factor of growing interest and importance throughout the country. Unlike any other sunshading material, expanded metal is directional. From the sun's angle, broad strands block and reflect the sun's glare and heat. With a 90° change in direction, the view is open; light and air pass through.



Beaumont Elementary School, Vista, Calif.



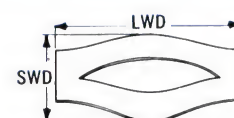
BEFORE remodeling, Kentucky Lithographing Company, Louisville, Ky.

for remodeling that makes old buildings look new—To give an old building a crisp, contemporary look—economically—calls for the best in design capability. It also calls for materials that can match the flexibility of the architect's imagination. Bright, colorful USG Expanded Metals, used as fascia paneling, decorate in a distinctively contemporary way, as the "before and after" photographs demonstrate. But they do much more than decorate. They insulate the building from the sun's glare and heat, at the same time allowing a clear view of the street from inside. It is the only material that can so economically alter the appearance of an aged building and still admit light and air through its existing windows. And here's an interesting fact on strength: the slitting and stretching process that produces expanded metal—in the case illustrated, 1½-in. ARMORWEAVE pattern—actually makes it stronger than the original sheet steel from which it was fabricated.



TODAY, 1½-in. ARMORWEAVE fascia panels make a dramatic difference

4-in. ARMORWEAVE pattern (actual size)



fascia styles, dimensions and weights

Material	Reg. Flat.	Style Designation	Design Size SWD x LWD (inches)	Opening Size SWO x LWO (inches)	Strand Size Width x Thickness (inches)	Overall Thickness (inches)	Standard Sheet Size		Per Cent Open Area	Wt.-lbs. Per 100 Sq. Ft.
							Width (SWO)	Length (LWO)		
Carbon Steel	R	1/2" #20	.60 x 1.20	.41 x .938	.200x.036	.219	4'	8'	34	100
		1/2" #18	.60 x 1.20	.38 x .938	.200x.048	.219	4	8	34	135
		1/2" #16	.60 x 1.20	.38 x .938	.200x.060	.219	4	8	34	169
		1 1/2" #20 (L)	1.33 x 3.00	.71 x 2.26	.500x.036	.500	4	8	25	113
		*1 1/2" #20 (H)	1.50 x 3.00	.65 x 2.28	.675x.036	.600	4	8	10	135
		1 1/2" #18 (L)	1.37 x 3.00	.70 x 2.26	.500x.048	.540	See Footnote 1		27	146
		1 1/2" #18 (H)	1.50 x 3.00	.54 x 2.10	.675x.048	.550	See Footnote 1		10	180
		1 1/2" #16 (L)	1.37 x 3.00	.70 x 2.30	.500x.060	.570	4	8	27	183
		*1 1/2" #16 (H)	1.50 x 3.00	.48 x 2.03	.675x.060	.550	4	8	10	226
		4" #16 (L)	3.00 x 8.00	1.16 x 5.85	1.250x.060	1.060	4	8 & 10	30	208
Aluminum	R	1/2" .051	.60 x 1.20	.38 x .94	.200x.051	.219	4	8	34	51
		1/2" .081	.60 x 1.20	.35 x .94	.200x.081	.219	4	8	34	74
		1 1/2" .051 (L)	1.24 x 3.00	.52 x 2.10	.500x.051	.500	See Footnote 2		21	59
		1 1/2" .051 (H)	1.47 x 3.00	.40 x 2.00	.675x.051	.470	See Footnote 2		10	67
		1 1/2" .081 (L)	1.26 x 3.00	.52 x 2.10	.500x.081	.530	See Footnote 1		23	92
		1 1/2" .081 (H)	1.46 x 3.00	.43 x 2.00	.675x.081	.520	See Footnote 1		10	107
		4" .051 (L)	3.00 x 8.00	1.18 x 6.25	1.250x.051	1.02	4	8	25	61
		4" .081 (L)	3.00 x 8.00	1.13 x 6.00	1.250x.081	1.187	4	8 & 10	20	97

*Produced on special order. (H) — Heavy Strand (L) — Light Strand (SWO) — Short Way of the Opening (LWO) — Long Way of the Opening
Footnote 1—Sheet Sizes are 4'x8', 6'x8', and 6'x6'3"; 2—Sheet Sizes are 4'x8', 6'x8', 6'x6'3", and 8'x4'.

(ALL DIMENSIONS AND WEIGHTS ARE APPROXIMATE.)

maximum recommended spans

(UNSUPPORTED CLEAR SPANS—LWD)

STYLE OF ARMORWEAVE

Design Wind Pressure Lbs. Per Sq. Ft.	CARBON STEEL				ALUMINUM ALLOY 5005-H34							
	1 1/2" — 18 (L) (1)	1 1/2" — 18 (L) (2)	1 1/2" — 18 (H) (1)	1 1/2" — 18 (H) (2)	1 1/2" — .051 (L) (1)	1 1/2" — .051 (L) (2)	1 1/2" — .051 (H) (1)	1 1/2" — .051 (H) (2)	1 1/2" — .081 (L) (1)	1 1/2" — .081 (L) (2)	1 1/2" — .081 (H) (1)	1 1/2" — .081 (H) (2)
20	3'2"	8'0"	8'0"	8'0"	3'6"	5'6"	4'7"	6'0"	7'0"	8'0"	8'0"	8'0"
25	2'8"	6'4"	8'0"	8'0"	2'10"	4'4"	4'0"	5'4"	5'6"	8'0"	8'0"	8'0"
30	2'5"	5'5"	8'0"	8'0"	2'4"	3'8"	3'2"	4'4"	5'0"	7'6"	8'0"	8'0"
35	2'0"	4'8"	7'0"	8'0"	2'1"	3'4"	2'8"	3'7"	4'0"	6'6"	7'0"	8'0"
40	1'10"	4'1"	6'0"	7'0"	1'11"	2'11"	2'6"	3'4"	3'7"	6'0"	6'0"	8'0"
45	1'7"	3'8"	5'0"	7'0"	1'8"	2'6"	2'4"	3'0"	3'2"	5'0"	5'0"	8'0"
50	1'6"	3'5"	5'0"	6'0"	1'6"	2'5"	2'0"	2'10"	3'0"	4'7"	5'0"	8'0"
55	1'5"	3'2"	4'6"	5'6"	1'5"	2'1"	1'10"	2'6"	2'8"	4'4"	4'6"	7'6"
60	1'2"	2'11"	4'0"	5'0"	1'4"	2'0"	1'7"	2'4"	2'6"	4'0"	4'0"	7'0"

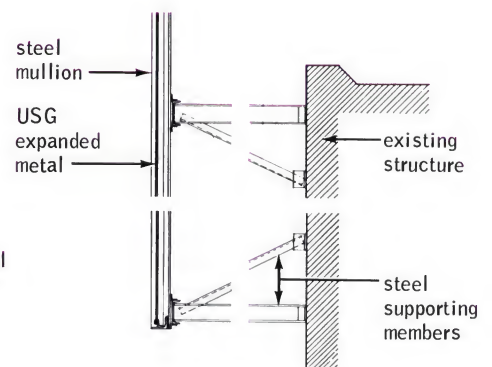
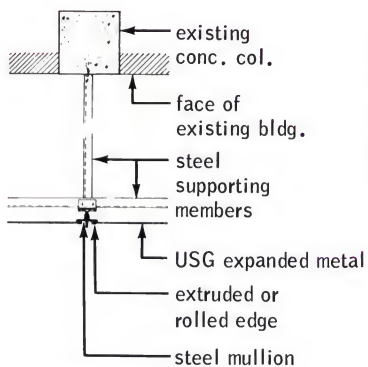
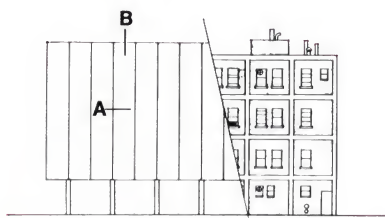
(1) At Yield Point

(2) At Permanent Set of 1/360 of Span

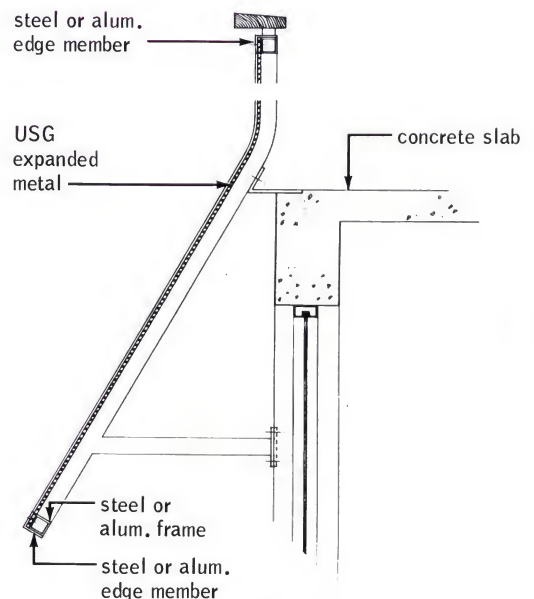
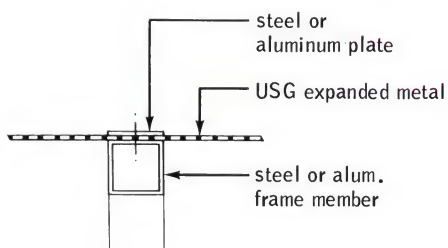
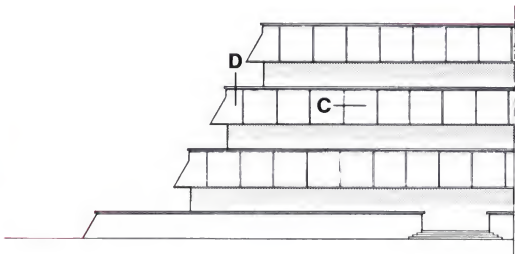
1½-in. ARMORWEAVE pattern (actual size)

fastening and framing suggestions

over existing structures



sunshades and railings



BALCONY RAILINGS

Strong, durable, expanded metals offer ideal protection for balconies and stairwells while making a tangible contribution to the beauty of your building design. Colorful, too, in anodized aluminum, or in steel or other metals that can be plated, painted, enameled, or plastic coated. Treated expanded metals are corrosion-resistant, light in weight, easy to handle; won't ravel when cut; can be quickly fabricated, easily installed; and require little maintenance. With all this, USG Expanded Metals are economical—cost much less than other types of decorative metals.

1½-in. EXPAND-X pattern, also available in ¾-in.

Material	Reg. or Flat.	Style Designation	Design Size SWD x LWD (inches)		Opening Size SWO x LWO (inches)		Strand Size Width x Thickness (inches)	Overall Thickness (inches)	Standard Sheet Size		Per Cent Open Area	Wt.-lbs. Per 100 Sq. Ft.
			Short	Long	Short	Long			Width (SWO)	Length (LWO)		
Carbon Steel	R	¾" #16	.88	x2.00	.70	x1.64	.095x.059	.183	4' & 6'	8' & 10'	76	54
		¾" #13	.88	x2.00	.73	x1.64	.095x.089	.185	4 & 6	8 & 10	76	80
		¾" #10	.89	x2.00	.68	x1.56	.141x.089	.277	4 & 6	8	69	120
		¾" #9	.86	x2.00	.60	x1.45	.137x.134	.290	4 & 6	8 & 10	68	180
		1" #16	1.01	x2.38	.88	x1.94	.095x.059	.196	4	8	82	47
		1½" #16	1.35	x3.00	1.18	x2.60	.112x.059	.210	4	8	85	40
		1½" #13	1.35	x3.00	1.20	x2.60	.112x.089	.213	4, 5 & 6	8 & 10	85	60
		1½" #10	1.33	x3.00	1.16	x2.52	.140x.089	.248	4 & 6	8 & 10	81	79
		1½" #9	1.33	x3.00	1.14	x2.43	.141x.134	.289	4 & 6	8 & 10	76	119
Aluminum	R	¾" .051	.88	x2.00	.70	x1.64	.095x.051	.192	3 & 4	8	78	17
		¾" .081 (L)	.88	x2.00	.70	x1.64	.095x.081	.211	3 & 4	8	78	25
		¾" .081 (H)	.88	x2.00	.73	x1.64	.141x.081	.270	3 & 4	8	68	37
		¾" .125	.88	x2.00	.65	x1.50	.160x.125	.320	3 & 4	8	74	65
		1½" .081	1.35	x3.00	1.20	x2.56	.112x.081	.226	3 & 4	8	83	19
		1½" .125	1.33	x3.00	1.13	x2.40	.160x.125	.340	3 & 4	8	85	43

1-in. CATHEDRAL pattern, also available in ½-in.

Material	Reg. or Flat.	Style Designation	Design Size		Opening Size		Strand Size Width x Thickness (Inches)	Overall Thickness (inches)	Standard Sheet Size		Per Cent Open Area	Wt.-lbs. Per 100 Sq. Ft.	
			SWD x LWD (Inches)		SWO x LWO (Inches)				Width (SWO)	Length (LWO)			
			Short	Long	Short	Long							
CATHEDRAL Carbon Steel	R	* ½" #20	.46	x1.00	.46x2.00	.34x .75	.34x1.75	.089x.036	.175	4'	8'	61	53
		½" #18	.46	x1.00	.46x2.00	.34x .75	.34x1.75	.089x.048	.175	4	8	61	77
		½" #16	.46	x1.00	.46x2.00	.34x .75	.34x1.75	.089x.060	.175	4	8	61	97
		1" #16	1.00	x2.00	1.00x4.00	.75x1.50	.75x3.50	.200x.060	.343	4	8	75	99
Aluminum	R	½" .051	.46	x1.00	.46x2.00	.34x .75	.34x1.75	.089x.051	.175	4	8	61	28
		½" .081	.46	x1.00	.46x2.00	.34x .75	.34x1.75	.089x.081	.175	4	8	61	45
		1" .081	1.00	x2.00	1.00x4.00	.75x1.50	.75x3.5	.200x.081	.343	4	8	75	46

1½-in. FESTOON pattern, also available in ½-in. and 4-in.

Material	Reg. or Flat.	Style Designation	Design Size SWD x LWD (inches)		Opening Size SWO x LWO (inches)		Strand Size Width x Thickness (inches)	Overall Thickness (inches)	Standard Sheet Size		Per Cent Open Area	Wt.-lbs. Per 100 Sq. Ft.
			Short	Long	Short	Long			Width (SWO)	Length (LWO)		
Carbon Steel	R	*½" #20	.63	x1.20	.51	x .94	.090x.036	.175	4'	8'	71	43
		½" #18	.63	x1.20	.50	x .94	.090x.048	.175	4	8	71	58
		*½" #16	.63	x1.20	.50	x .94	.090x.060	.175	4	8	71	72
		*1½" #16	1.50	x3.00	1.38	x2.63	.112x.060	.217	4	8	85	37
		*1½" #13	1.50	x3.00	1.31	x2.63	.112x.090	.236	4	8	81	59
		1½" #9	1.50	x3.00	1.25	x2.50	.141x.135	.292	4	8	81	112
		*4 #9	3.75	x8.00	3.50	x7.25	.230x.134	.500	4	8	90	68
		*4 #4	3.75	x8.00	3.38	x7.00	.230x.223	.500	4	8	88	114
Aluminum	R	½" .051	.63	x1.20	.507x	.938	.090x.051	.175	4	8	71	21
		*½" .081	.63	x1.20	.467x	.938	.090x.081	.175	4	8	71	33
		*1½" .081	1.38	x3.00	1.25	x2.625	.112x.081	.250	4	8	83	19
		1½" .125	1.50	x3.00	1.25	x2.563	.141x.125	.250	4	8	81	38
		*4 .250	3.38	x8.00	3.0	x6.75	.356x.250	.625	4	8 & 10	82	86

1-in. LYRIC pattern

Material	Reg. or Flat.	Style Designation	Design Size SWD x LWD (inches)		Opening Size SWO x LWO (inches)		Strand Size Width x Thickness (inches)	Overall Thickness (inches)	Standard Sheet Size		Per Cent Open Area	Wt.-lbs. Per 100 Sq. Ft.
			Short	Long	Short	Long			Width (SWO)	Length (LWO)		
Aluminum	R	1" #125	1.00x1.81	1.00x3.13	.80x1.30	.80x2.60	.130x1.25	.25	8	4	75	46

*Produced on special order



The Cryder House, Beechhurst, N.Y.

FINISHING

ANODIZED FINISH

In case of extreme atmospheric conditions, such as sea air, high humidity, or industrial gases, aluminum expanded metals may be anodized as a protective measure. Of course, anodizing is decorative, too. During the anodizing process, the aluminum may be colored with a wide variety of dyes and pigments. When required for unmaintained exterior surfaces, expanded metals can be specially made from "ANOCALD" or equivalent sheets.

PAINTING, PLATING, ENAMELING, AND PLASTIC FINISHES

All USG Expanded Metals are produced from scale-free metal and thus are easily finished. Painting is best accomplished with spray or deep nap roller, since the edges and corners of the mesh may be injurious to brushes. The meshes readily adapt to standard hot-dip galvanize, electro-plate, and baked enamel finishes.

CLEANING

Expanded metals should be cleaned before finishing. Carbon steel meshes are lightly oiled before shipping, and a solvent or acid dip followed by water rinsing is recommended. Since the aluminum meshes pick up slight amounts of dust-catching oil during manufacture, it is advisable to clean them with a mild soap or detergent even though no finish coat will be applied.

FINISHES aluminum

ALLOY	TYPE	EXTERIOR	INTERIOR	REMARKS
5005-H34	Unfinished	X	X	Specify surface cleaning prior to painting. Resists mild abrasion. Standard colors are generally available.
5005-H34	Painted	X	X	
5005-H34	Exterior Anodized	X	X	Higher abrasion resistance. Highest resistance to abrasion and attack by combinations of sea air, humidity and industrially contaminated atmospheres.
5005-H34	Heavy Duty Anodized	X	X	
carbon steel				
	Painted	X	X	Steel used has scale-free surface, but is shipped lightly oiled. Specify cleaning prior to finishing.
	Bonderized & Enameled	X	X	
	Galvanized	X	X	Not recommended for ARMORWEAVE mesh.
	Plastic Coated	X	X	

The finishes are generally arranged in ascending order of added initial cost. United States Gypsum does not apply above finishes.

specifications

notes to architect

1. ARMORWEAVE Expanded Metal should be supported along full width of panel by bolting, riveting or welding 6" o.c. For best appearance, reveal support at ends of panel. Cantilevering panels beyond supports is not recommended. To prevent buckling when fasteners are tightened, supporting framework should extend over at least two bonds on sides and one bond on ends.

2. ARMORWEAVE panels should be installed consistently with respect to the direction and side of fabrication. The slight indentation of the tool impression causes opposite sides of the panel to appear differently. The angular orientation of the metal produces maximum sunshading in one direction and maximum hiding properties in the other direction.

3. If panels larger than the maximum ARMORWEAVE sheet size are desired, sheets may be matched and spliced in the short direction of the diamond. Price and availability of this service on request. It is not feasible to joint sheets in the long direction of the diamond.

4. Aluminum panels without finishing should be thoroughly cleaned before erection. Normal oxidation will occur gradually, depending on atmospheric conditions. If attached to steel frame, a rubber or other non-conductive gasket should be used to prevent galvanic corrosion.

5. Fracturing may occur if ARMORWEAVE is bent on a very short radius.

6. Hot-dipped galvanized finish is not recommended for ARMORWEAVE.

7. For additional information or details not covered in this publication, direct inquiries to local U.S.G. Expanded Metal distributor or UNITED STATES GYPSUM, Metal Products Division, 101 S. Wacker Dr., Chicago, Ill. 60606.

Part 1: general

1.1 scope—Specify to meet job requirements.

1.2 qualifications

All materials, unless otherwise indicated, shall be manufactured by United States Gypsum Company, and shall be installed in accordance with its current printed directions.

1.3 storage of materials

All materials shall be protected from damage and exposure to the elements to keep clean. Damaged materials shall be removed from the premises.

Part 2: products

2.1 material

a. Fascia—ARMORWEAVE Expanded Metal, (specify metal, size, gauge, strand and finish from table).

b. Balcony railing—USG Expanded Metal, (specify pattern, metal, size, gauge, strand and finish from table).

c. Framing and Fasteners—(Design and fabricate locally as required by the job).

Part 3: execution

3.1 Attach expanded metal to supporting framework with (specify fasteners) spaced (specify spacing) o.c.

TRADEMARKS: The following trademarks are owned and/or registered by United Gypsum Company, and identify the particular expanded metal products manufactured only by that company: "USG", "GRATE-X", "EXPAND-X". NOTE: Since methods and conditions of application and use are beyond our

control, our warranties of FITNESS and MERCHANTABILITY and any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.

GRATE-X*

**EXPANDED
METAL
GRATING**

for platforms and walkways



GRATE-X Grating Description

GRATE-X is a heavy duty expanded metal, produced from carbon steel sheet and plate. GRATE-X contains no joints or welds; each sheet is a single piece of sturdy steel.

Features and Benefits of GRATE-X Grating

Strength Structurally stronger than the original sheet, yet light weight. GRATE-X Expanded Metal Grating is the ideal walkway and platform floor for light to heavy pedestrian loads. Load tables on page 5 indicate the load/span combinations that may be accommodated with less than $\frac{1}{4}$ " deflection, considered the maximum deflection to afford pedestrian comfort. U.S.G. test data confirms that greater loads may be safely accommodated if the amount of deflection is not critical.

Low Cost A cost-conscious engineer is always wary of over-design. It is frequently more economical to build walkways and platforms with GRATE-X than with other types of steel grating. Savings of up to 50% are not unusual. The reduction in dead weight, afforded by the use of GRATE-X Grating, is also a plus factor in the design of large structures.

Safety Most companies place safety ahead of all other aspects of plant operation. For this reason the plant engineer or plant designer is always looking for ways to improve *safety performance* of an installation. GRATE-X provides one of the best *slip-resistant* walking surfaces available today. A *safe, sure* footing is extremely important when men are working above ground or floor level.

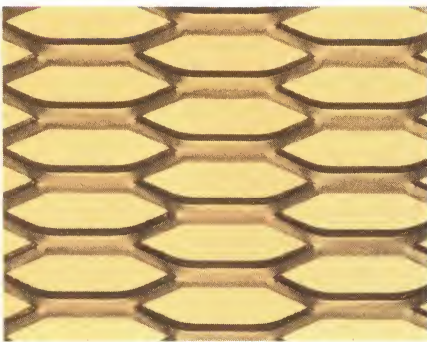
The high percent of open area, characteristic of GRATE-X Grating, allows snow, water and oil to drain off easily, thus maintaining the excellent *slip-resistant* surface. The high percent of open area also allows excellent passage of heat and light, and contributes to walkways cleanliness. Where *building maintenance* and *safety* are important considerations, these features are outstanding.

Handling and Job Fabrication

Convenient sheet sizes and light weight make GRATE-X a favorite of many steel workers. Job cutting and fitting is easy, and can be done by one or two men with simple cutting and welding equipment. The convenient sheet sizes make it possible to move GRATE-X Grating into semi-finished structures for installation on walkways and platforms even though the roof of the structure has been completed.

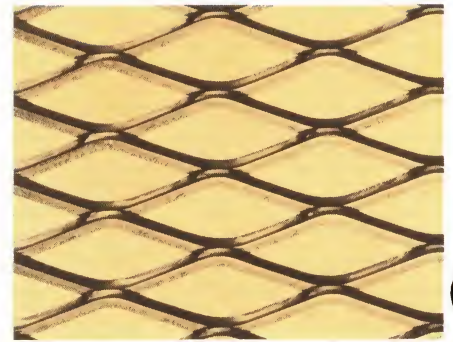
Standard GRATE-X

(2.0#, 3.0#, 4.0#, 5.0#, 6.25#, 7.0#)



Short Bond GRATE-X

(3.14#, 4.27#)

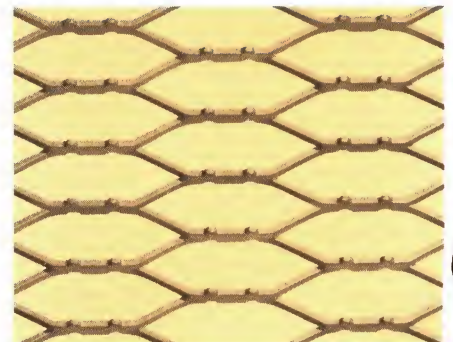
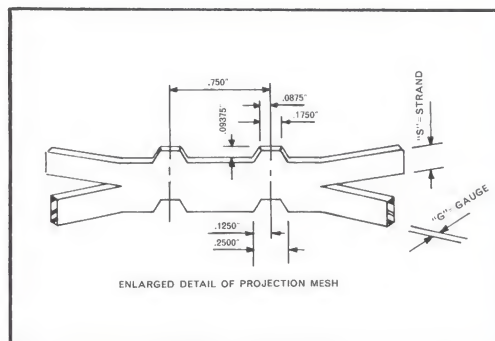


Government Specifications

GRATE-X meets all requirements of Military Specifications MIL-M-17194C (Metal, Expanded, Steel) and MIL-G-18015 (Ships) (Gratings, Metal, other than Bar Type), and the deflection requirements of Federal Specification RR-G-661b.

PROJECTION MESH

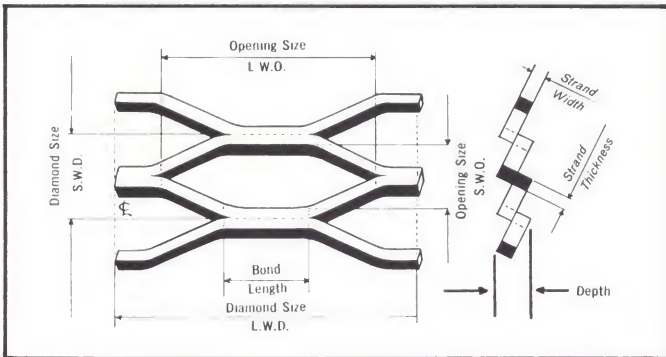
Projection Mesh is a uniquely designed expanded metal with small tooth-like projections on the upper surface of the mesh. The projections provide an excellent non-slip surface. Offered primarily for light to moderate loads on spans of 6" to 24", it is excellent for industrial platforms, maintenance stands, and stair treads where maximum safety is a requirement.



Technical Data

STYLE DESIGNATION	WT. PER 100 S.F.	DIAMOND SIZE SWD x LWD	OPENING SIZE SWO x LWO	STRAND SIZE WIDTH x THICKNESS	DEPTH IN INCHES	PERCENT OPEN AREA	STANDARD SIZE SHEET	
							WIDTH (SWD)	LENGTH (LWD)
CARBON STEEL GRATE-X								
3.0 lb.	300	1.33 x 5.33	.95 x 3.50	.264 x .183	9/16	60	4' & 6'*	8', 10' & 12'*
3.14 lb.	314	2.00 x 6.00	1.63 x 4.88	.312 x .250	11/16	69	4' / 4' & 6'*	8' / 10'*
4.0 lb.	400	1.33 x 5.33	.83 x 3.30	.300 x .215	5/8	62	4', 5' & 6'*	8' & 10'*
4.27 lb.	427	1.41 x 4.00	1.00 x 2.88	.300 x .250	5/8	58	4' & 6'*	8' & 10'*
5.0 lb.	500	1.33 x 5.33	.76 x 3.20	.331 x .250	11/16	57	4' & 5'*	8' & 10'*
6.25 lb.	625	1.41 x 5.33	.75 x 3.10	.350 x .312	3/4	53	4' & 6' / 6'	8' / 6'3"
7.0 lb.	700	1.41 x 5.33	.69 x 3.05	.391 x .312	3/4	49	4' / 6'	8' / 6'3"
CARBON STEEL FLATTENED GRATE-X								
2.8 lb.	280	1.33 x 5.67	.81 x 4.00	.285 x .160	.160	55	4'	8'
3.75 lb.	375	1.33 x 5.67	.81 x 4.00	.320 x .190	.190	50	4'	8'
2.95 lb.	295	2.00 x 6.38	1.31 x 5.50	.340 x .220	.220	64	4'	10'
4.02 lb.	402	1.41 x 4.25	.75 x 3.50	.315 x .210	.210	53	4'	8'
ALUMINUM GRATE-X – TYPE 5052								
2.0 lb.	200	1.33 x 5.33	.61 x 3.20	.387 x .250	3/4	46	4' / 5'	8' / 10'
CARBON STEEL PROJECTION MESH								
1.87 lb.	187	1.13 x 5.00	.88 x 3.19	.187 x .134	7/16	67	6' / 4'	10' / 8'4"
3.0 lb.	300	1.13 x 5.00	.75 x 3.12	.250 x .164	5/8	56	6'	8'4"

*Also available 10' SWD x 2', 2'6", 3' LWD.



ALUMINUM GRATE-X GRATING

Aluminum GRATE-X is manufactured in the same manner as carbon steel GRATE-X. It offers the advantages of aluminum along with the properties of expanded metal grating. Some specific advantages of Aluminum GRATE-X are:

Economy—The light weight and high strength per pound combine for most economical open type metal flooring.

Corrosion Resistance—Offers high resistance to weathering and industrial atmospheres. Painting is not required for protection from the weather.

Non-sparking, Non-magnetic, Non-toxic—Excellent for use in explosive atmospheres and food processing plants.

ORDERING INFORMATION

1. Order from your local U.S.G. Expanded Metal Distributor.
2. Always specify the amount, style and sheet size, as in the following examples:

20 pcs., 5.0# GRATE-X, 4' x 8'
5 pcs., 2.0# Alum. GRATE-X, 5' x 10'

NOTE: The sheet size S.W.D. (short way of diamond) is always specified first and the sheet size L.W.D. (long way of diamond) is specified second, i.e. S.W.D. x L.W.D.

3. If special sheet sizes are required, state exact sheet size and type of shearing wanted, or dimensional tolerance allowed. GRATE-X is normally furnished bond sheared on the first bond over the specified dimension (both S.W.D. and L.W.D.); however, it can be furnished random sheared to a closer tolerance if required.

Standard tolerances on special sheet sizes are as follows:

Bond Sheared Sheets -0", +1/2 diamond
Random Sheared Sheets $\pm 1/8"$

4. If your GRATE-X requirements involve walkway and platform areas that cannot be specified in simple sheet sizes, contact your U.S.G. Sales Engineer for assistance.

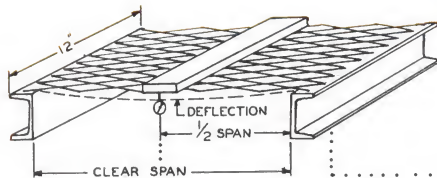
Selection Guide

In selecting an appropriate type of grating for a job, the designer or engineer decides first on the general functional characteristics required, such as safety, open area and ease of maintenance. After the basic product is selected, he must determine the proper style of grating to satisfy the load and span conditions of the job. The following information will help you select the proper style of GRATE-X for your job.

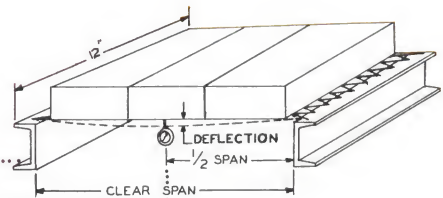
CONCENTRATED LOAD AT CENTER OF SPAN (Lbs. Per Foot of Width)		Clear Span									
CARBON STEEL		18"	24"	30"	36"	42"	48"	54"	60"	66"	72"
50	3.0 3.14	3.0 3.14	3.0 3.14	3.0 3.14	3.0 3.14	4.0 4.27	5.0 6.25	6.25 7.0	6.25 7.0	7.0	
100	3.0 3.14	3.0 3.14	3.0 3.14	3.0 3.14	4.0 4.27	5.0 6.25	7.0				
150	3.0 3.14	3.0 3.14	3.0 3.14	5.0 6.25	5.0 6.25	7.0	7.0				
200	3.0 3.14	3.0 3.14	4.0 4.27	5.0 6.25	6.25 7.0	7.0					
250	3.0 3.14	3.0 3.14	4.0 4.27	6.25 7.0	7.0						
300	3.0 3.14	4.0 4.27	5.0 6.25	7.0							
350	3.0 3.14	4.0 4.27	6.25 7.0	7.0							
400	3.0 3.14	4.0 4.27	6.25 7.0								
CARBON STEEL PROJECTION MESH		12"	18"	24"	30"	36"	HOW TO SELECT GRATE-X Determine the clear span. Determine the loading condition and the amount of the load. Select the appropriate GRATE-X style from this selection guide.				
50	1.87	1.87	1.87	3.0	3.0						
100	1.87	1.87	3.0	3.0							
150	1.87	1.87	3.0								
200	1.87	3.0									
ALUMINUM		12"	18"	24"	30"	36"					
50	2.0	2.0	2.0	2.0	2.0						
100	2.0	2.0	2.0	2.0	2.0						
150	2.0	2.0	2.0	2.0							
200	2.0	2.0	2.0								

HOW TO READ LOAD TABLES

All flooring load tables are based on the following



- C.....CONCENTRATED LOAD
(LBS. PER 12" OF WIDTH)
- U.....UNIFORM LOAD.....
(LBS. PER SQ. FT.)
- D.....DEFLECTION.....
(IN INCHES)



CONCENTRATED LOAD—a load distributed over a relatively small area, such as a pedestrian load or portable equipment load. Typical concentrated loads are shown in pounds per foot of grating width, measured perpendicular to the span.

UNIFORM LOAD—a load uniformly distributed over all of the clear span. Typical uniform loads are shown in pounds per square foot of grating.

DEFLECTION—the deviation in inches from the original plane when a piece of grating is placed under load.

CLEAR SPAN—the distance between supports, measured from the inside edge of one support to the inside edge of the next support.

Load Tables

GRATE-X STYLE	LOAD CONDI- TION	CLEAR SPAN (inches)	LOAD IN POUNDS—DEFLECTION IN INCHES							
			50 LB.	100 LB.	150 LB.	200 LB.	250 LB.	300 LB.	350 LB.	400 LB.
3.0# CARBON STEEL	C	24	0.05	0.10	0.15	0.20	0.25	0.30		
		30	0.07	0.15	0.22	0.29				
		36	0.08	0.16	0.24					
		42	0.18	0.36						
	U	24	0.05	0.09	0.13	0.18	0.24	0.30		
		30	0.12	0.22	0.33					
		36	0.20	0.40						
		42								
3.14# CARBON STEEL	C	24	0.03	0.06	0.09	0.14	0.18	0.23	0.28	
		30	0.06	0.12	0.18	0.27	0.35			
		36	0.10	0.20	0.30					
		42	0.16	0.32						
	U	24	0.04	0.08	0.12	0.17	0.21	0.26		
		30	0.10	0.20	0.31					
		36	0.22	0.44						
		42								
4.0# CARBON STEEL	C	24	0.02	0.04	0.07	0.10	0.13	0.16	0.19	0.22
		30	0.04	0.08	0.14	0.20	0.25	0.31		
		36	0.09	0.18	0.28	0.36				
		42	0.11	0.22						
	U	24	0.03	0.07	0.11	0.15	0.18	0.22	0.27	
		30	0.07	0.13	0.22	0.31				
		36	0.14	0.30						
		42	0.25							
4.27# CARBON STEEL	C	24	0.03	0.05	0.07	0.10	0.13	0.16	0.19	0.22
		30	0.06	0.10	0.16	0.20	0.25	0.30		
		36	0.08	0.17	0.30	0.40				
		42	0.18	0.32						
	U	24	0.03	0.08	0.12	0.15	0.20	0.25		
		30	0.10	0.18	0.27					
		36	0.15	0.31						
		42	0.29							
5.0# CARBON STEEL	C	30	0.03	0.07	0.11	0.15	0.19	0.23	0.27	
		36	0.05	0.10	0.16	0.22	0.28			
		42	0.08	0.16	0.24	0.35				
		48	0.12	0.24	0.36					
	U	24	0.02	0.04	0.08	0.11	0.13	0.15	0.18	0.21
		30	0.05	0.10	0.15	0.20	0.26			
		36	0.10	0.23	0.37					
		42	0.18	0.35						
6.25# CARBON STEEL	C	36	0.04	0.07	0.14	0.17	0.21	0.27	0.32	
		42	0.05	0.12	0.20	0.26				
		48	0.10	0.20	0.30					
		54	0.13	0.27						
	U	30	0.03	0.07	0.11	0.15	0.20	0.25	0.30	
		36	0.04	0.11	0.16	0.20	0.25	0.30		
		42	0.14	0.28						
		48	0.24							
7.0# CARBON STEEL	C	36	0.02	0.05	0.09	0.12	0.16	0.20	0.24	0.28
		42	0.03	0.07	0.12	0.18	0.25	0.33		
		48	0.04	0.08	0.12	0.20	0.28			
		60	0.10	0.28						
	U	30	0.06	0.09	0.12	0.15	0.18	0.22	0.25	
		36	0.06	0.13	0.20	0.27				
		42	0.10	0.25						
		48	0.14	0.30						
2.0# ALUMINUM	C	18	0.01	0.02	0.03	0.04	0.06	0.08	0.10	0.12
		24	0.02	0.04	0.09	0.13	0.18	0.23	0.26	0.28
		30	0.04	0.09	0.14	0.22	0.31			
		36	0.07	0.18	0.30					
	U	18	0.01	0.03	0.03	0.06	0.08	0.10	0.12	0.14
		24	0.04	0.08	0.12	0.17	0.23	0.30		
		30	0.08	0.20	0.33					
		36	0.14	0.28						
1.87# PROJECTION MESH (CARBON STEEL)	C	12	0.01	0.02	0.03	0.04	0.05	0.07	0.09	0.11
		18	0.04	0.08	0.12	0.16	0.20	0.24	0.30	
		24	0.12	0.25	0.37					
		30	0.22	0.40						
	U	12	0.01	0.02	0.03	0.04	0.05	0.06		
		18	0.04	0.09	0.14	0.20	0.24	0.29		
		24	0.10	0.22	0.35					
		30	0.29							
3.0# PROJECTION MESH (CARBON STEEL)	C	18	0.02	0.03	0.05	0.07	0.10	0.13	0.16	0.19
		24	0.04	0.09	0.14	0.20	0.27	0.34		
		30	0.08	0.17	0.30					
		36	0.16	0.32						
	U	18	0.01	0.03	0.05	0.07	0.09	0.12	0.16	0.20
		24	0.05	0.10	0.16	0.25				
		30	0.12	0.25						
		36								

Deflection values shown in **bold** type are less than the 1/4" maximum recommended for normal pedestrian comfort but may be safely exceeded at the discretion of the engineer.

TEST PROCEDURE

Deflection testing was conducted by the Research Center of United States Gypsum.

Actual installation conditions were simulated in the laboratory by affixing GRATE-X sections to steel structural channels in the recommended manner, i.e., with ends welded or bolted to the structural supports at every fourth bond. Loads were applied, and deflection measured on a Tinius-Olsen testing machine. Test data was then programmed for IBM 1130 Computer and the output data assembled for chart presentation.

Safety factor: either 2/3 proportional limit or 1/2 ultimate load, whichever is less.

GRATE-X Grating Installation

Installation tips

1. GRATE-X has a "top" and "bottom" side, as shown in diagram 5, below. GRATE-X should be installed with the straight edge up for greater surface contact.
2. The slope of the bonds (see diagram 4) should always be in the same direction on a given platform or walkway for neatness and uniformity.
3. GRATE-X should always be placed so that the long direction of the diamond opening parallels the span, and the ends should always bear on, and be fastened to, structural supports as in diagrams 1 and 2. Fastening may be by welding or bolting every fourth bond, or approximately every 6".
4. The sides of adjacent sheets do not require structural supports when welded as in diagrams 6 and 7.
5. All diagonal or circular cut exposed edges should be banded with a bar roughly equal to the over-all grating thickness, welded at contact points. See diagram 3.
6. Diagram 8 illustrates the recommended method for covering cut-outs.

Specifications

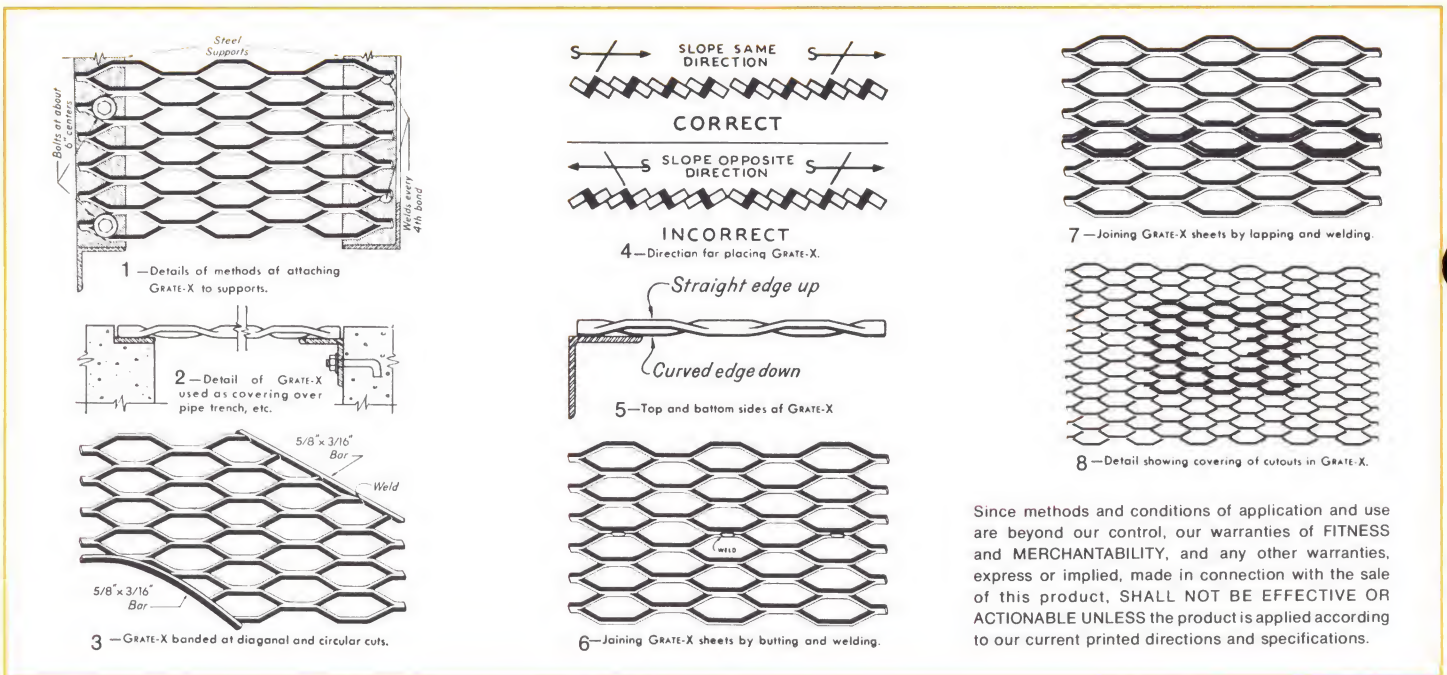
scope—GRATE-X Expanded Metal Grating, shall be installed for all walkways and other areas where shown on drawings.

material—GRATE-X Expanded Metal Grating shall weigh (specify weight per square foot from Table, page 3).

(For steel) The steel used in manufacture shall comply with ASTM designation A-283-58T.

(For Aluminum) The aluminum used in manufacture shall be 5052 H-32 alloy.

erection—Units of GRATE-X shall be installed with straight edge of bond up. GRATE-X shall be so placed that the direction of the long way of the diamond parallels the direction of the span. Attachment to framing shall be by welding at 6" intervals. Edges parallel to long way of diamonds shall be butted and welded on every second bond. Individual pieces of GRATE-X shall be placed in such a manner that the diamonds of one piece are aligned with those of adjacent pieces.



Quotation and Shop Fabrication Services Provided by United States Gypsum

U.S.G. will provide a price quotation on your grating requirements when the areas to be covered are of complicated configuration and will not accept stock size sheets. The advantages of a wide range of sheet sizes and expert utilization of material accrue to you when you allow U.S.G. to prefabricate your grating at its Warren, Ohio plant.

Here is how it works:

1. Provide your U.S.G. Distributor with the structural plans and specifications for your building floor, platform or walkway. Indi-

cate the areas on which you wish to use GRATE-X and GRATE-X Stair Treads.

2. U.S.G. will review your plans and make a rough area take-off. You will be provided with a price quotation and estimate of delivery time by the Distributor.

3. Such quotations are considered firm for a period of 90 days during which time an order may be placed with your U.S.G. Distributor under the terms of the original quotation.

4. Upon receipt of your order and the final specifications, U.S.G. will prepare a cutting list and erection drawing. The erection

drawing will be submitted for your approval and then sent to the plant for fabrication.

5. Pre-fabrication includes shearing to size, torch cutting, and welding of bands and toeplates, where required. When material must be coded to the erection drawing, all pieces are tagged for identification. Primer painting is available when specified. The material is unitized for convenient handling to your job location.

Don't fail to consider this added service when you order GRATE-X.

GRATE-X Stair Treads

GRATE-X Stair Treads are fabricated from GRATE-X and simple steel sections. GRATE-X Treads are strong and durable, provide a safe, sure footing, and like GRATE-X, they are self-cleaning and easy to maintain. GRATE-X Treads are ideal for industrial stairs, either interior or exterior. They are easily installed by simple attachment with bolts and nuts to standard channel stringers.

Abrasive or checkerplate nosings are available on special order.

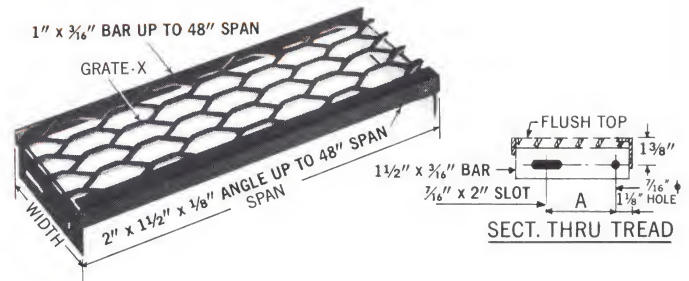
GRATE-X Treads are shipped completely fabricated, primer painted and ready for installation. Attachment bolts not furnished.

Select the STAIR TREAD to fit your needs

GRATE-X Stair Treads are available from stock in standard sizes* or they may be produced to order in $\frac{1}{2}$ " length increments up to and including 48".

Width	Dimension "A"	Weight in Lbs.	
		Base	Per 1"
5 $\frac{5}{8}$ "	2 $\frac{1}{2}$ "	.90	.32
7"	2 $\frac{1}{2}$ "	1.12	.36
8 $\frac{1}{4}$ "	4 $\frac{1}{2}$ "	1.30	.38
9 $\frac{5}{8}$ "	6"	1.53	.42
11"	7"	1.75	.46

*Standard Sizes Available from Stock: 8 $\frac{1}{4}$ " x 24", 8 $\frac{1}{4}$ " x 30", 9 $\frac{5}{8}$ " x 30", 9 $\frac{5}{8}$ " x 36".



Safe Concentrated Loads**	
Length	Safe Concentrated Loads
24"	670 #
30"	530 #
36"	440 #
42"	380 #
48"	335 #

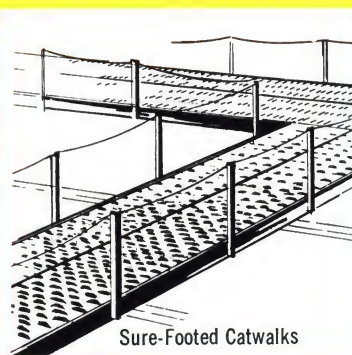
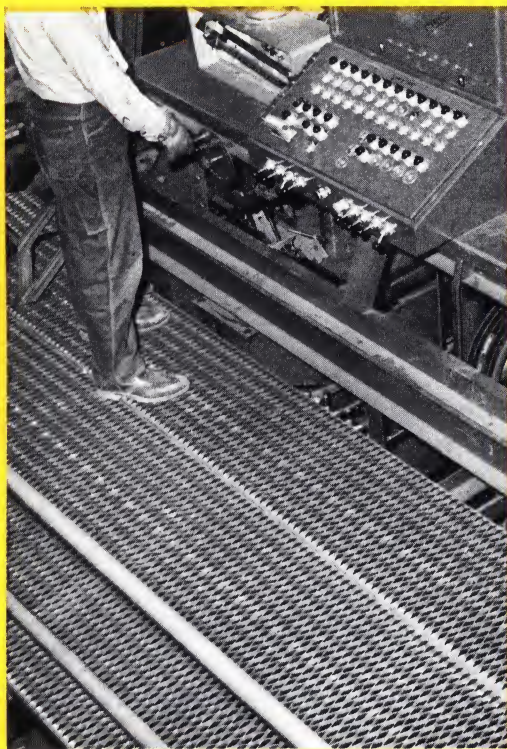
**Load limits are approximately the same for treads of the same length, regardless of width.



GRATE-X

**EXPANDED
METAL
GRATING**

for platforms and walkways



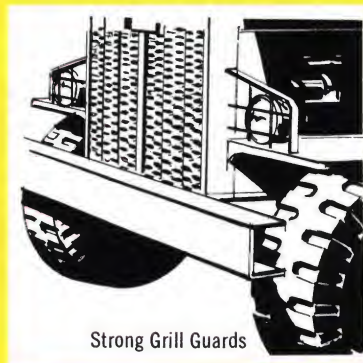
Sure-Footed Catwalks



Self-Cleaning Work Platforms



Safer Aircraft Maintenance



Strong Grill Guards

description and utility

GRIP STRUT Safety Grating has been engineered to provide maximum safety underfoot, exceptional load-carrying capacity for intermediate span lengths, and lightweight, self-framing, one-piece construction. As such it is ideally suited for all types of work platforms, open flooring, catwalks, balconies, storage areas, walkways and stair treads. It has been extensively used by the aircraft, food processing, oil and automobile industries.

GRIP STRUT, a unique material, has reticulated and formed metal cross struts arranged in a diamond pattern with integrally formed channels at the edges. The cross struts form a slip-resistant, resilient walking surface with sufficient open area to provide ample passage of light and air. Other features include:

High Strength—lightweight, one-piece construction develops strength from the section and a high load capacity per pound. Some styles are suitable for spans up to 12 ft.

Safety Surface—the unique surface pattern makes GRIP STRUT Safety Grating slip-resistant in all directions.

Easily Installed—most sections can be handled by one man. Cuts readily—is rapidly welded, bolted or clamped into place.

Large Open Area—permits free flow of air, heat and light. Often eliminates need for additional sprinklers under catwalks and platforms.

Economical—low in initial cost. Quickly installed, self-cleaning. Standard galvanized finish minimizes maintenance. Plain finish is easily painted for low maintenance costs. Light weight with high strength can result in structural steel savings.

types and functions

GRIP STRUT Gratings are manufactured in two basic types and in a variety of channel depths and gauges to accommodate design loads needed for pedestrian traffic or those encountered in light storage or equipment installations (see safe load table). GRIP STRUT is produced in carbon steel, galvanized steel, aluminum or stainless steel, to meet a variety of corrosive atmospheric conditions. Widths from 4¾" to 18¾" and lengths up to 14' are available to meet job requirements. GRIP STRUT Grating products include:

1. **GRIP STRUT Safety Grating** provides a highly slip-resistant serrated surface for use under conditions where safety underfoot is a prime requirement. Material meets anti-slip values set forth in Fed. Spec. RR-G-661-b. Listed under Reexamination Service of Underwriters' Laboratories, Inc.; see Accident Equipment List, Guide No. 120 LO.

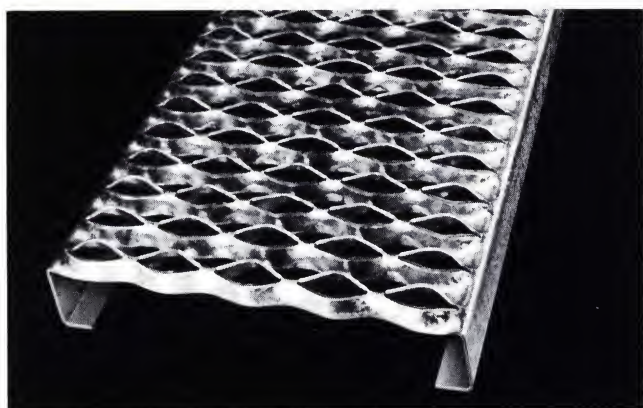
2. **GRIP STRUT Intermediate Span Grating** features a non-serrated surface, and provides a high-strength, lightweight pedestrian trafficway, platform or storage deck.

3. **GRIP STRUT Safety Treads** are complete, ready-to-install stair tread units fabricated from GRIP STRUT Safety Grating. Standard Safety Stair Treads are available to meet normal load requirements in 4¾, 7, 9½ and 11¾-in. widths. Abrasive Nosing Safety Treads are available in 8½ and 10½-in. widths. Standard lengths for both styles are: 25¾, 30¾, 36, and 47½ in.; special lengths available on order. GRIP STRUT Safety Stair Treads, which are manufactured from Safety Grating, are recommended for use wherever slip-inducing substances may form on walkways.

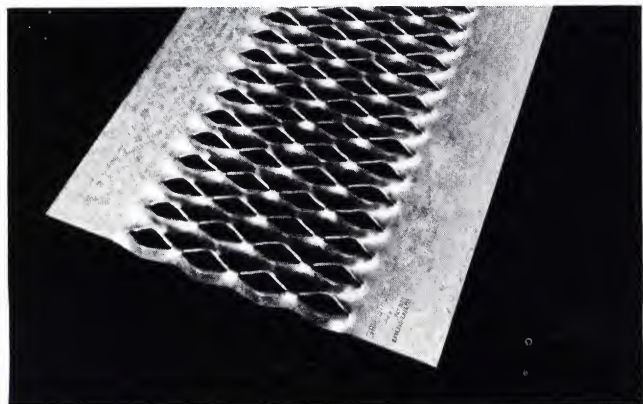
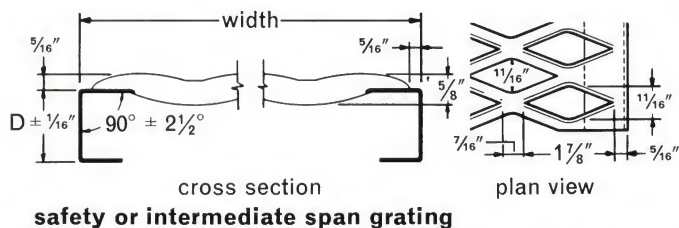
GRIP STRUT Stair Treads also are available fabricated from Intermediate Span Grating.



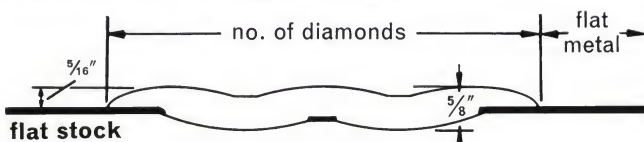
GRIP STRUT Safety Grating



GRIP STRUT Intermediate Span Grating



GRIP STRUT Grating Flat Stock



product data

available metals

- a. **carbon steel**—hot rolled, pickled and oiled.
- b. **galvanized steel**—hot dipped mill galvanized steel fabricated after galvanizing. In use the edges are protected by the electrochemical action of the zinc.
- c. **stainless steel**—alloy type 304, 18-8 (18 chrome, 8 nickel) austenitic stainless. This alloy offers excellent corrosion resistance, high strength and good weldability.
- d. **aluminum**—alloy 5052-0. In addition to light weight this alloy offers strength and corrosion resistance.

finishes

Standard: galvanized steel or plain steel painted with protective aluminum coating. Unpainted material is lightly oiled.

lengths—metal gratings

10', 12' and 14' in steel and galvanized steel; 10' and 12' in stainless steel and aluminum.

grating—styles available

weights and dimensions

gauge & type	channel height (1) widths	weight—lbs. per lin. ft.				
		4 3/4"	7"	9 1/2"	11 3/4"	18 3/4"
14 ga. steel	1 1/2"	2.3	3.0	3.6	4.2	6.1
	2"	2.6	3.2	3.8	4.4	6.3
	2 1/2"	2.8	3.5	4.1	4.7	6.6
12 ga. steel	1 1/2"	3.2	4.1	5.0	5.9	8.5
	2"	3.6	4.5	5.4	6.2	8.9
	2 1/2"	4.0	4.9	5.7	6.6	9.2
	3"	—	5.2	6.1	7.0	9.6
12 ga. aluminum	2"	.94	1.15	1.38	1.59	—
16 ga. stls. stl.	2"	—	—	3.2	3.27	—

(1) Add 5/16" for overall depth

flat stock—styles available

Flat Stock is available in all standard materials and sizes. The open matrix is symmetrical about the flat plane. The following table indicates the approximate dimensions of flat metal available on each side.

dimensions—steel and aluminum

matrix	flat metal each side
2-diamond	2 1/4" to 3 13/16"
3-diamond	2 3/8" to 3 7/8"
4-diamond	2 3/4" to 3 3/4"
5-diamond	2 3/8" to 3 3/4"
8-diamond	2 3/4" to 4"

Flat Stock also can be formed to suit requirements calling for specified dimensions of flat metal on either or both sides. Special side channels or special shapes can be formed on either or both sides.

stair tread—styles available

dimensions—steel and aluminum

standard				with abrasive nosing			
A	B	C	D	A	B	C	D
4 3/4" (2 dia.)	1 1/2"	3/8"	—	—	—	—	—
7" (3 dia.)	1 1/2"	3/8"	3 3/8"	8 1/8" (3 dia.)	1 1/2"	3/8"	4 1/2"
9 1/2" (4 dia.)	1 1/2"	1 1/8"	5 3/8"	10 1/2" (4 dia.)	2"	1 1/8"	6 3/8"
11 3/4" (5 dia.)	1 1/2"	3/8"	8 1/8"	—	—	—	—
	2"	1 1/8"	8 1/8"				

Length tolerance: ± 1/8"

design data

steel—GRIP STRUT Grating—5 diamond/11¼" width (1)

gauge	channel depth		span																
			2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
# 14 ga.	1½"	U	536	344	240	177	136	108	88	74	62								
		D	.06	.10	.14	.20	.26	.33	.41	.50	.60								
		C	525	422	353	304	267	239	216	198	183								
		D	.05	.08	.12	.16	.21	.26	.33	.40	.48								
	2"	U	890	571	397	293	225	178	145	120	102	87	76	66	59	47			
		D	.06	.09	.13	.17	.23	.29	.36	.43	.52	.61	.71	.83	.95	1.21			
		C	707	699	584	502	440	393	355	324	299	277	259	243	230	207			
		D	.04	.07	.10	.14	.18	.23	.29	.35	.42	.49	.57	.66	.76	.97			
	2½"	U	1021	655	456	336	258	204	166	138	116	100	86	76	67	54	44		
		D	.04	.06	.08	.11	.14	.18	.23	.28	.33	.39	.45	.52	.60	.77	.96		
		C	707	707	669	575	505	450	407	371	342	317	296	278	262	236	216		
		D	.02	.04	.06	.09	.12	.15	.18	.22	.26	.31	.36	.42	.48	.62	.77		
# 12 ga.	1½"	U	710	456	318	235	181	144	117	98	83	71	62	55	49				
		D	.07	.11	.15	.21	.28	.35	.44	.53	.64	.76	.89	1.03	1.18				
		C	695	558	467	402	354	317	287	263	244	227	213	201	190				
		D	.05	.08	.12	.17	.22	.28	.35	.43	.51	.60	.71	.82	.95				
	2"	U	1131	725	505	372	286	227	185	154	130	111	97	85	75	60	50	42	
		D	.05	.08	.11	.16	.20	.26	.32	.39	.47	.56	.65	.75	.86	1.11	1.39	1.70	
		C	1107	888	742	638	561	501	453	414	382	355	332	312	295	266	243	224	
		D	.04	.06	.09	.12	.16	.21	.26	.31	.38	.44	.52	.60	.69	.89	1.11	1.36	
	2½"	U	1691	1083	753	554	425	337	273	226	191	163	141	123	109	87	71	59	50
		D	.04	.06	.09	.13	.17	.21	.26	.32	.38	.45	.52	.60	.68	.87	1.09	1.33	1.60
		C	1115	1115	1106	950	833	742	669	610	561	519	484	453	426	382	347	319	295
		D	.02	.04	.07	.10	.13	.17	.21	.25	.30	.36	.41	.48	.55	.70	.87	1.06	1.28
	3"	U	2138	1370	952	701	537	425	345	286	241	206	178	155	137	109	89	74	63
		D	.04	.06	.08	.11	.14	.18	.22	.27	.32	.38	.44	.51	.58	.74	.93	1.13	1.36
		C	1115	1115	1115	1115	1052	937	845	770	707	654	609	570	537	480	436	399	369
		D	.02	.03	.05	.08	.11	.15	.18	.22	.26	.31	.36	.41	.47	.60	.74	.90	1.09

stainless steel—GRIP STRUT Grating—5 diamond/11¼" width (1)

material	channel depth		span											
			2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"		
#16 ga. Type 304	2"	U	583	374	261	192	148	118	96	80	68	58		
		D	.05	.08	.11	.16	.20	.26	.32	.39	.47	.56		
		C	464	458	383	330	290	259	235	215	199	185		
		D	.03	.06	.09	.12	.16	.21	.26	.32	.38	.45		

Conversion factors for other sizes per 12" width of flooring (uniform load only)

width	4¾"	7"	9½"	11¾"	18¾"
factor	2.53	1.71	1.26	1.00	0.64

(1) For load data on other sizes, see GRIP STRUT Grating Catalog, G-60.

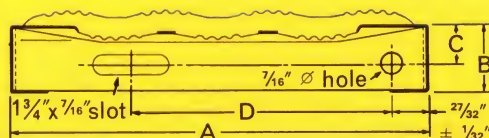
aluminum—GRIP STRUT Grating—5 diamond/11¼" width (1)

material	channel depth		span			
			1'-6"	2'-0"	2'-6"	3'-0"
#81 Alloy 5052	2"	U	490	276	177	123
		D	.02	.04	.07	.09
		C	243	243	217	181
		D	.01	.03	.05	.08

U—uniform load, lbs./sq. ft.; C—concentrated load, lbs.; D—deflection in inches.

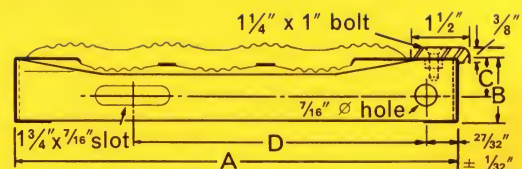
The above safe loads were determined in accordance with A.I.S.I. Light Gauge Cold Formed Steel Design Manual 1962, Section 6.

GRIP STRUT Safety Stair Tread

dimensions A, B, C, & D have a tolerance $\pm \frac{1}{16}$ "

treads available in safety edge as shown, or in intermediate type

Abrasive Nosing GRIP STRUT Safety Stair Tread



safe loading—GRIP STRUT Stair Treads

U-uniform load C-concentrated load (pounds)		2-diamond						3-diamond						4-diamond						5-diamond					
material		steel		steel		alum.		steel		steel		alum.		steel		steel		alum.		steel		steel		alum.	
gauge		14		12		.081		14		12		.081		14		12		.081		14		12		.081	
span	side channel	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U	C	U
2'-0" (std. 23 3/8")	1 1/2"	472	1191	624	1576	—	—	443	761	587	1006	—	—	435	549	595	750	—	—	425	434	563	575	—	—
	2"	783	1978	995	2513	243	614	737	1262	936	1604	228	392	604	911	917	1158	224	282	573	721	897	916	197	224
2'-6" (std. 30 1/2")	1 1/2"	378	764	500	1011	—	—	356	488	470	645	—	—	349	353	476	481	—	—	342	278	452	369	—	—
	2"	611	1268	797	1611	194	393	590	810	750	1029	183	251	578	584	734	742	179	181	566	463	719	587	176	143
3'-0" (std. 30 3/8")	1 1/2"	315	532	418	703	—	—	300	340	393	450	—	—	300	245	398	335	—	—	300	194	378	258	—	—
	2"	524	882	665	1121	162	273	492	563	626	716	152	174	483	407	614	517	150	126	473	322	601	409	147	100
4'-0" (std. 47 1/2")	2"	394	498	501	633	—	—	372	318	472	404	—	—	364	230	463	292	—	—	356	182	454	232	—	—

Note: Steel treads—exceed concentrated and uniform live load capacities required by major building codes; intermediate stringer recommended for spans over 4 ft. Aluminum treads—exceed uniform live load capacity required by major building codes; not recommended for spans over 36 in.

specifications

Note to architect: "Specification Drawings" of GRIP STRUT Grating Products, G-52, and "Design Drawings for Stair Systems", G-404, are available, at no cost, for use in design and drawing preparation. Ask your GRIP STRUT Grating distributor for them.

scope—The contractor shall supply all labor, material and equipment to install GRIP STRUT Grating and GRIP STRUT Stair Treads, as specified, in all areas where shown on the drawings. Approved shop drawings are required before work proceeds.

grating materials—shall be GRIP STRUT Grating, as manufactured by the Metal Products Division, United States Gypsum Company, with the following characteristics:

- Type:** (GRIP STRUT Safety Grating) (GRIP STRUT Intermediate Span Grating).
- Metal:** (carbon steel) (hot dipped mill galvanized steel) (stainless steel alloy type 304) (aluminum alloy 5052).
- Finish:** (mill galvanized before fabrication) (painted—one standard shop coat of aluminum primer) (unfinished, oiled).
- Metal gauge:** (14-ga. steel) (12-ga. steel) (16-ga. stainless steel) (.081 aluminum), (choose size from table).
- Section width:** (4 3/4") (7") (9 1/2") (11 3/4") (18 3/4"), (choose size from table).
- Channel depth:** (1 1/2") (2") (2 1/2") (3"), (choose size from table).

stair tread materials—shall be GRIP STRUT Grating, as manufactured by the Metal Products Division, United States Gypsum Company, with the following characteristics:

- Type:** (GRIP STRUT Safety Stair Tread) (GRIP STRUT Stair Tread), (Standard Nosing) (Abrasive Nosing).
- Metal:** (carbon steel) (hot dipped mill galvanized steel) (stainless steel alloy type 304) (aluminum alloy 5052).
- Finish:** (mill galvanized before fabrication) (painted—one standard shop coat of aluminum primer) (unfinished, oiled).
- Tread depth:** (2 dia. 4" wide) (3 dia. 7" wide) (4 dia. 9 1/2" wide) (5 dia. 11 3/4" wide), (choose size from table).
- Channel height:** (1.5") (2.0"), (choose size from table).
- Gauge:** (14-ga. steel) (12-ga. steel) (16-ga. stainless steel) (.081 aluminum), (choose size from table).
- Span or width of staircase:** (23 3/8") (30 3/8") (36") (47 1/2"), (choose size from table).

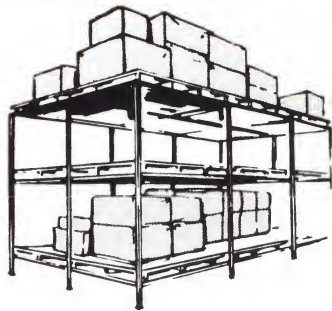
installation—Grating and stair treads shall be installed as directed by manufacturer using (welds) (bolts) (anchoring devices).

distribution

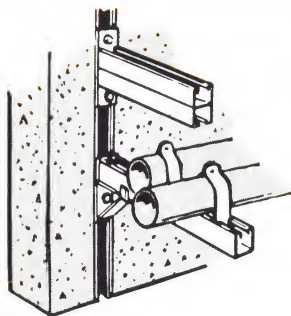
GRIP STRUT Safety Grating and GRIP STRUT Safety Stair Treads are stocked by distributors in principal cities. Consult the local classified telephone directory under Gratings—Steel Floor for qualified assistance.

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these

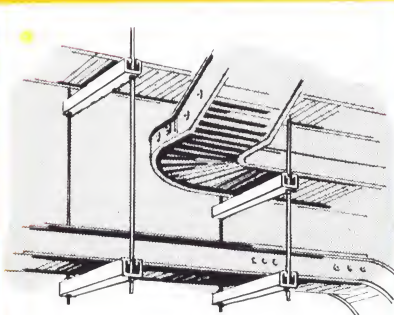
products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.



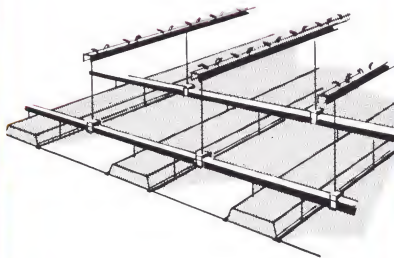
Racks



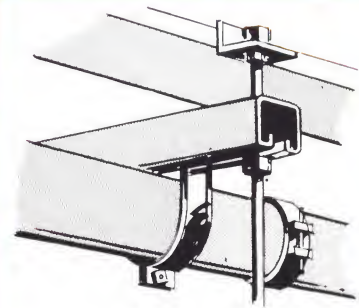
Concrete Inserts



Cable Tray Supports



Electrical Supports



Mechanical Supports

description and utility

GLOBE-STRUT Channel Framing is a proven member of the United States Gypsum product family. Designed and manufactured by Metal Products Division to exacting U.S.G. standards, it serves multiple uses throughout industry.

GLOBE-STRUT Channel Framing satisfies a broad range of needs for a bolted framing system for most electrical, mechanical and industrial applications.

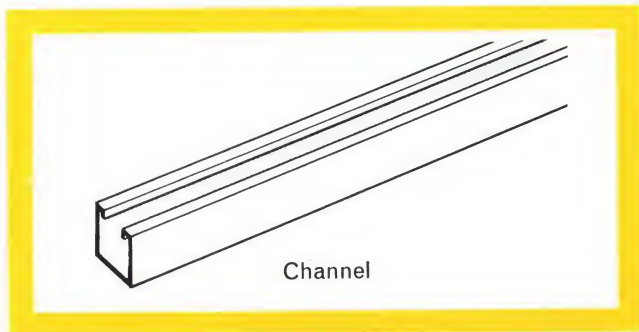
Rectangular channel frame members are rolled into a "U" section with an opening $\frac{3}{8}$ " wide at the top. The basic sizes shown on page 2 make possible a wide variety of applications.

Fast Installation—requires no special skills or tools. The GLOBE-STRUT Channel System of metal framing is so simple, assemblies go up in minimum time. A hacksaw and wrench are the only tools required. What takes hours with welded framing often assembles in minutes with GLOBE-STRUT System.

Positive Connections—the key element in the system is the electro-galvanized "triple grip" GLOBE-STRUT Lock Nut. Its unique curved ends permit positioning inside the channel without tools. Triple-grip holding power derives from: the built-on spring that holds the nut firmly against the inside of the channel lips—grooves that embrace the lips to prevent turning—serrations within the grooves that prevent slippage.

Versatile—the number and combination of installations possible with this system are almost limitless. Best of all, when GLOBE-STRUT has served its purpose in one capacity, it can be easily dismantled and reassembled for another use.

Permanent Finish—the galvanized finish literally becomes part of the metal—resists separation when crimped or subjected to impacts, stresses or pressures. GLOBE-STRUT serves indoors or out, year after year. (Optional finishes available.)



types and functions

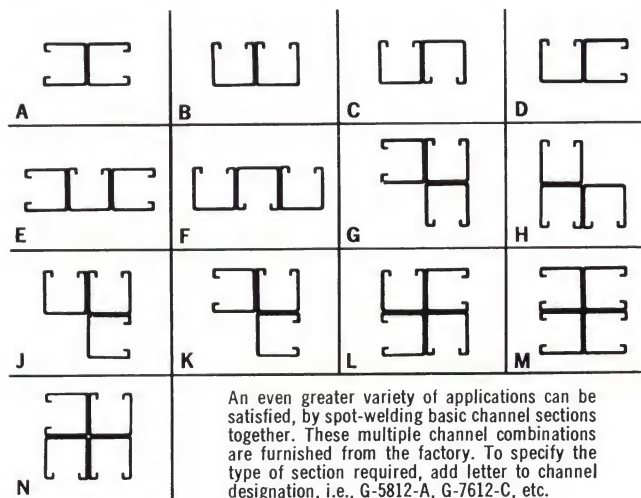
GLOBE-STRUT Channel Framing is available in either the basic solid continuous type or in four variations—knock-out, punch-out and slotted channels and continuous concrete inserts (see product data for basic sizes). Channels are available in G-7612, G-5812, G-5814, G-3812, G-1315 and G-1012 sizes.

Basic Channels with a solid continuous web can be assembled to frame-out general requirements as needed. A specially designed lock nut and cap screw will permit channel assembly at any position or in any basic combination with the other channel types.

Combination Channels—two or more basic channels welded back to back or side to side provide extra load capacities where required. They are also used to provide additional slot openings simply and efficiently.

available combinations of components

shape	A	B	C	D	E	F	G	H	J	K	L	M	N
G-7612	x	x	x					x				x	
G-5812	x	x	x	x	x	x	x	x	x	x	x	x	x
G-5814	x	x	x	x	x	x	x	x	x	x	x	x	x
G-3812	x	x	x					x				x	
G-1012	x												
G-1315	x												



Knock-out Channels have $\frac{7}{8}$ " diameter knock-outs on 6" centers starting 3" from the end. To specify, add suffix "KO" to product number. (G-7612 excluded.)

Punch-out Channels have $\frac{9}{16}$ " diameter holes on 1 $\frac{7}{8}$ " centers starting $1\frac{5}{16}$ " from end. To specify, add suffix "PO" to product number. (G-7612 excluded.)

Slotted Channels have $1\frac{3}{32}$ "x3" slots on 4" centers starting 2" from end. To specify, add suffix "SL" to product number. (G-7612 excluded.)

Continuous Concrete Inserts, attached to the pouring face of forms, provide a permanent, continuous mounting slot flush with the concrete surface. A punched portion of the channel back provides protruding "ears" to establish mechanical anchorage in the concrete. A plate fills the void created by the "ear" opening and two $\frac{3}{16}$ " knock-outs in the plate permit screwing or nailing to steel or wooden forms.

Before the insert is mounted, CT-180 closure tape should be used to seal the continuous slot (available, applied, when specified). This will prevent concrete seepage during pouring, and is easily removed after forms are stripped. The continuous slot, flush with the surface, is then available—in ceilings for hanger rods, in walls or tunnels for racks to carry piping or electrical equipment, and in floors for anchorage.

CI-5814 Series Concrete Inserts are made from G-5814 Channel; CI-5812 from G-5812; CI-3812 from G-3812; CI-1315 from G-1315; CI-1012 from G-1012 (see product data, page 4, for basic sizes). Lengths: 20', 18', 16', 14', 12', 10', 8', 6', 8", 6', 4', 40", 32", 24", 16", 12", 8", 6", 4", and 3".

Concrete Spot Inserts, CSI, also available where continuous inserts not required. Easily removed slotted knock-out allows insertion of square or rectangular nuts for threaded hanger rod.

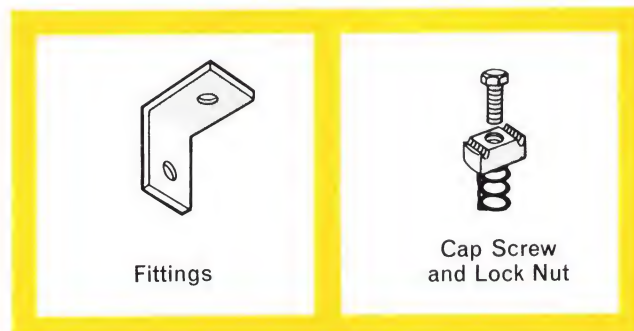
Channel Closure Strips—Steel, G-5800, 20-ga. or Aluminum, G-5800-AL .010". Snap-in types fit all channels. Length: 10'.

channel finishes

1. Hot dip mill galvanized in accordance with ASTM Designation A-525.
2. Hot dip galvanized after fabrication in accordance with ASTM Designation A-386.
3. Painted with Globe-Green or Globe-Gray Enamel. Globe-Gray Finish conforms to ANSI Spec. Z55.1-1950, No. 61.
4. Plain, with no coating except preservative oil.

fittings

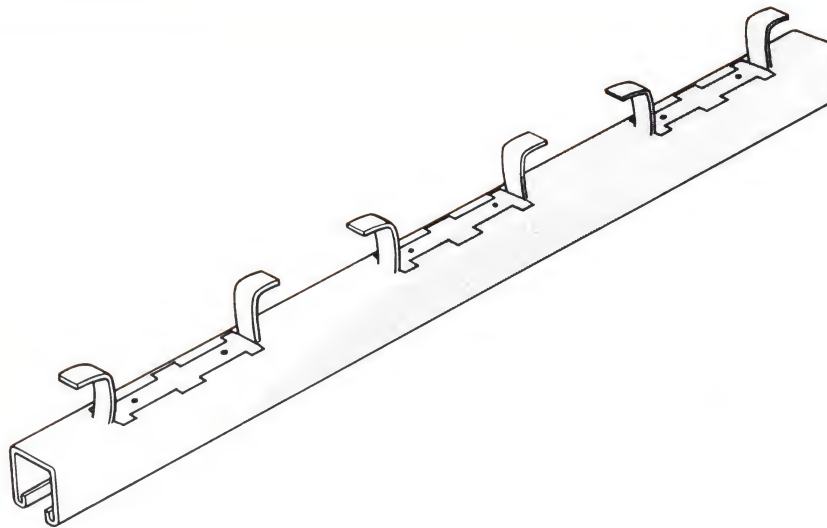
General fittings for all types of applications are made of $\frac{1}{4}$ "x1 $\frac{5}{8}$ " hot rolled steel pickled and oiled. Holes are $\frac{9}{16}$ " diam., $1\frac{3}{16}$ " from the ends, and 1 $\frac{7}{8}$ " o.c. unless otherwise specified. Standard finish: electro-galvanized after fabrication.



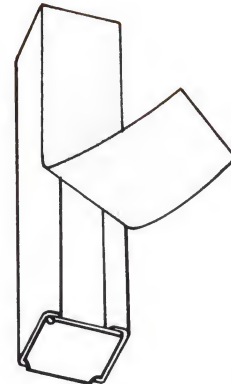
approval

GLOBE-STRUT Channel Framing is listed by Underwriters' Laboratories, Inc. for use as a continuous metal raceway. Listed in Underwriters' Laboratories, Inc. Construction Materials List, Surface Metal Raceway (360 A19) Section.

The appropriate labels will be affixed when applicable.

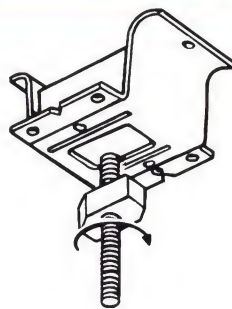
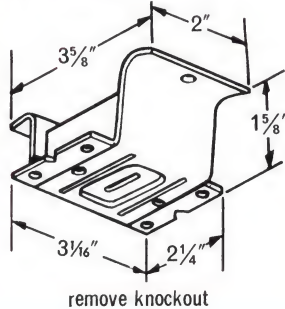


Continuous Concrete Insert

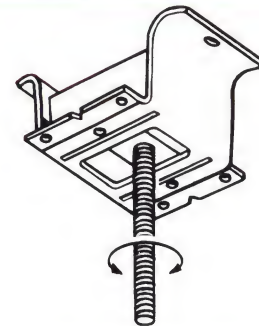


Closure Tape and End Cap

CSI
Concrete Spot Insert



set nut and rod



adjust rod for depth



Rectangular nuts—RN series—Can be inserted into the concrete spot insert on the end of a threaded rod. A simple twist after insertion turns nut crossways to the slot. The nut is made permanently secure by turning threaded rod in nut until rod end bears against roof of insert.



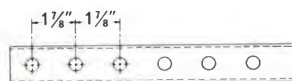
Square nuts—SN series—Will not turn in concrete spot insert; therefore, rod can be run up without holding the nut.

maximum number of type T, TW, AVB, R, RH, or RW conductors per channel

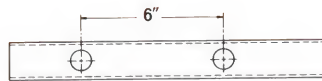
wire size— Amer. wire ga.	G-7612 G-5812 G-5812-KO G-5814 G-5814-KO	G-3812 G-3812-KO	G-1012 G-1012-KO	G-1315 G-1315-KO
14	6—10	6—10	4—6	4—6
12	6—10	6—10	3—6	3—6
10	5—8	4—6	— —	— —
8	4—6	3—4	— —	— —
6	2—3	2—3	— —	— —

NOTE: When specifying "UL" Listed Raceway, include a "UL" suffix and finish. Example: G-5812-KO-UL Galvanized. Refer to UL Construction Material List for data on wire carrying capacity.

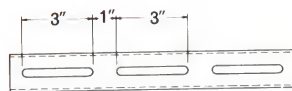
product data



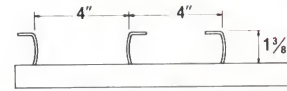
punch-out channel—web view



knock-out channel—web view

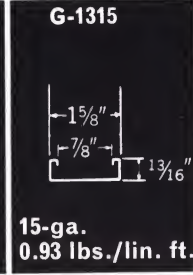
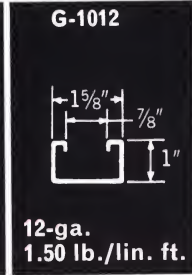
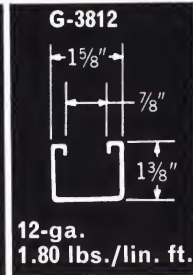
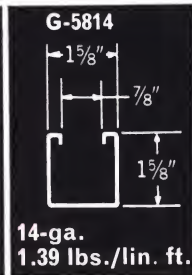
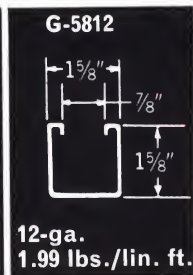
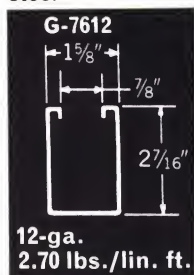


slotted channel—web view

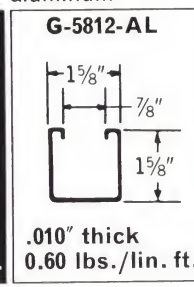


concrete insert—side view

steel



aluminum



specifications

channel framing

All channel framing shall be GLOBE-STRUT, as manufactured by the Metal Products Division of United States Gypsum Company.

The GLOBE-STRUT straight sections shall be cold roll formed from mild steel or extruded aluminum. The finish shall be (hot dip mill galvanized in accordance with ASTM Designation A-525) (hot dip galvanized after fabrication in accordance with ASTM Designation A-386) (painted with Globe-Green, Globe-Gray conforming to ANSI Specification Z55.1-1950, No. 61 or Globe-Red Chromate after a thorough cleaning and coating with phosphate crystals to assure paint bond) (plain, without any coating except preservative oil).

The size of the straight sections shall be as follows:

design- nation	cross section	length	gauge
G-7612	2 7/16" x 1 5/8"	20' & 10' (+ 3/8") (cut to length)	#12
G-5812	1 5/8" x 1 5/8"	20' & 10' (+ 3/8") (cut to length)	#12
G-5814	1 5/8" x 1 5/8"	20' & 10' (+ 3/8") (cut to length)	#14
G-3812	1 3/8" x 1 5/8"	20' & 10' (+ 3/8") (cut to length)	#12
G-1012	1" x 1 5/8"	20' & 10' (+ 3/8") (cut to length)	#12
G-1315	1 3/16" x 1 5/8"	20' & 10' (+ 3/8") (cut to length)	#15
G-5812-AL	1 5/8" x 1 5/8"	20' only, extruded from 6063-T6	—

The tolerance on all lengths shall be + 1/4" — 0"

Fittings shall be GLOBE-STRUT fittings and shall be as described in the GLOBE-STRUT Catalog or the latest improvements in the GLOBE-STRUT line. The finish shall be (electro-galvanized) (hot dip mill galvanized in accordance with ASTM Designation A-525) (painted) (plain, without any coating except preservation oil).

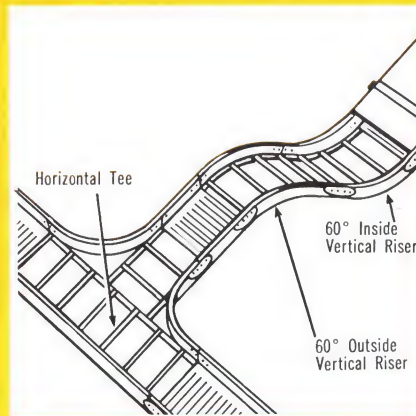
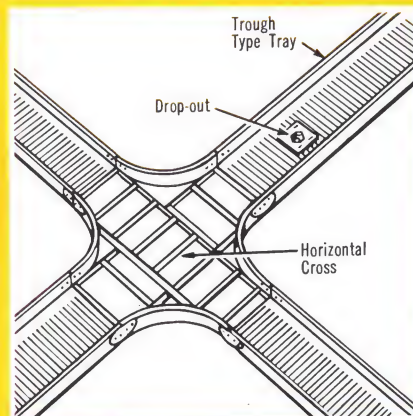
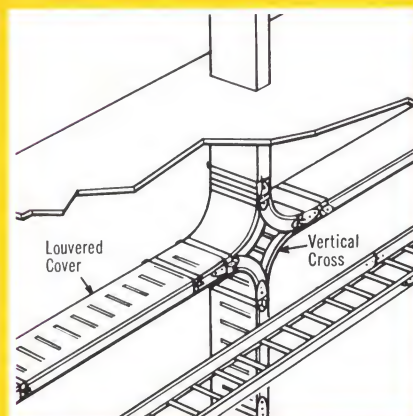
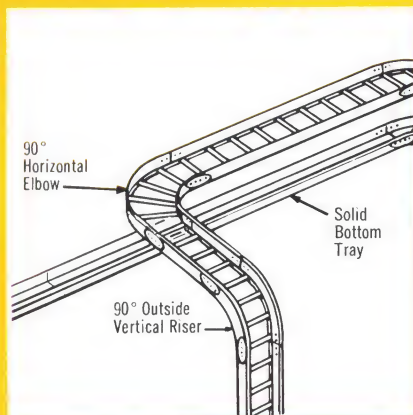
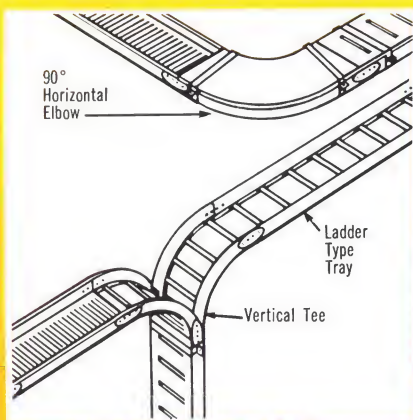
Lock nuts shall be GLOBE-STRUT lock nuts. They shall be manufactured of hot rolled steel, cyanide hardened and electro-plated with zinc or cadmium. They shall be furnished (with or without) springs.

Bolts shall be GLOBE-STRUT (Hex-Head Cap Screws) (Flat Head Machine Screws) (Round Head Machine Screws). The finish shall be electro-plated with zinc or cadmium.

GLOBE-STRUT Channel Framing is available through distributors in principal cities. Consult your U.S.G. Division representative for information, or write directly to: Metal Products Division, United States Gypsum Company, 101 So. Wacker Dr., Chicago, Ill. 60606.

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this catalog to designate particular products manufactured by that company: GLOBE-STRUT (channel framing).

NOTE: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY as well as any other warranties, express or implied, made in connection with the sale of these products, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products are applied according to our current printed directions and specifications.



description and utility

CABLE-STRUT Tray Systems are proven members of the United States Gypsum product family. Designed and manufactured by Metal Products Division to exacting U.S.G. standards, they serve in many ways throughout industry.

CABLE-STRUT Cable Tray, available in three interchangeable types, is a continuous mechanical support system designed for installation of control, power, and signal conductors or other electrical services. It is made in straight sections, with matching fittings to accommodate all changes of direction or quantity of cables. Design conforms to NEMA recommendations.

These cable trays will also support metal, glass and plastic pipes used in chemical processing, hydraulic lines, and various other industrial equipment. Trays may be supported by GLOBE-STRUT® Channel Framing (see Product Folder G-516 for suggested support system).

*Reg. U.S. Pat. Off.

Maximum Cable Space—design allows full inside width and depth of tray to be utilized for cable.

Electrical Continuity—standard splice plate connections offer less than .00033 ohms resistance—assure electrical continuity between all sections in system.

Structural Continuity—load-carrying capacities of all components—trays, fittings and accessories—are design-matched for complete system integrity.

Easy Inspection—design of trays, except solid-bottom type, exposes installed cable for inspection from top and bottom.

Maximum Cable Protection—smooth buttonhead bolts and turned out side rail flanges eliminate potential damage sources—assure maximum protection for installed cable.

types and functions

steel trays

Ladder Type—CABLE-STRUT Ladder Type Tray, Model K, is fabricated with two longitudinal side rails connected by individual transverse rung members.

Trough Type—CABLE-STRUT Trough Type Trays are produced in two models: Model U is of one-piece construction with ventilated bottom; Model K is fabricated with two longitudinal side rails connected by a one-piece bottom that has integrally formed rungs, spaced 1 in. o.c. with $\frac{7}{16}$ -in. opening. These troughs generally are recommended to provide a combination of physical protection and ventilation for the cables.

Solid Bottom Type—CABLE-STRUT Solid Bottom Trays are available in one-piece construction.

aluminum trays

Ladder Type—CABLE-STRUT Ladder Type Tray, Model K, is fabricated with two longitudinal side rails connected by individual transverse rung members.

Trough Type—CABLE-STRUT Trough Type Trays are produced in two models: Model U is of one-piece construction with ventilated bottom; Model K is fabricated with two longitudinal side rails connected by individual transverse rung members, and is recommended to prevent festooning of light cables. Model U is generally recommended to provide a combination of physical protection and ventilation for the cables.

materials

Steel—steel used is of commercial quality, with a standard

finish of galvanized coating conforming to ASTM A525. Also available hot dipped galvanized after fabrication.

Aluminum—aluminum alloys used are selected for appropriate structural and mechanical properties. Consult Metal Products Division for information on additional types of aluminum cable trays.

fittings

One series of fittings, standardized to serve both trough and ladder installations, provides economy. Ask for G-43 Fitting Selector to simplify specification and layout preparation.

cable tray covers

Cable tray covers, solid or ventilated, are available for all straight sections. Solid covers are available for all fittings. Standard material is commercial quality steel, mill galvanized in accordance with ASTM A525, and/or aluminum.

miscellaneous accessories

Cable clamps, hangers, hold down or cover clamps, tray divider strips with or without protectors, etc., are available as normal accessories. Ask for G-51 and G-520 CABLE-STRUT Cable Tray Accessories Catalogs.

safe uniform load

Consult current CABLE-STRUT Cable Tray literature for applicable safe uniform loads of various types of cable trays.

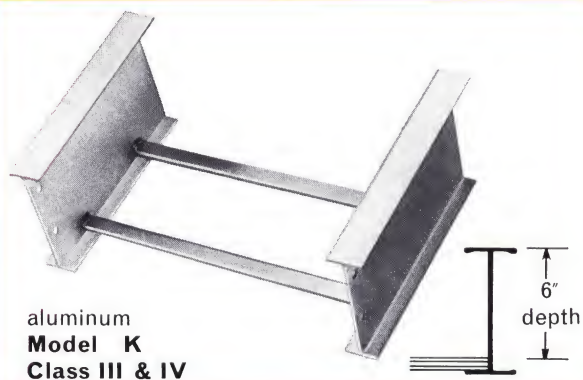
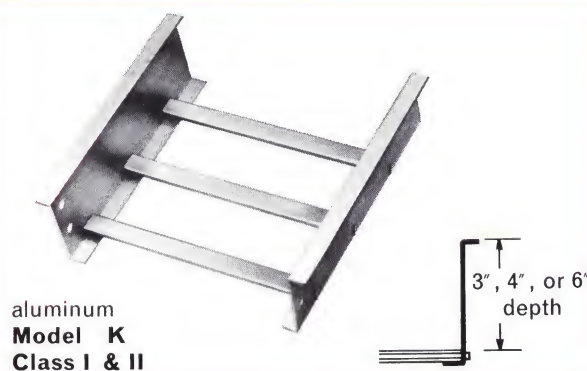
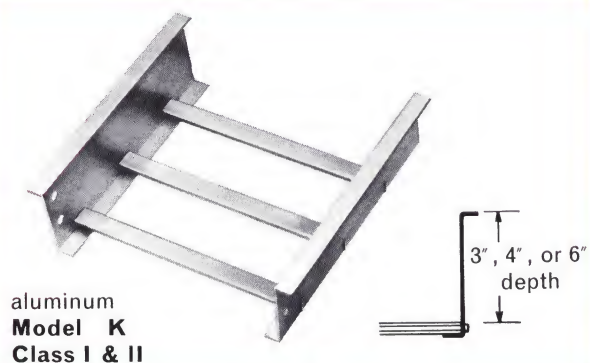
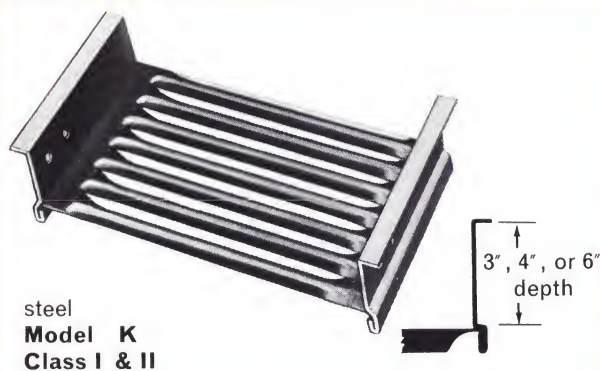
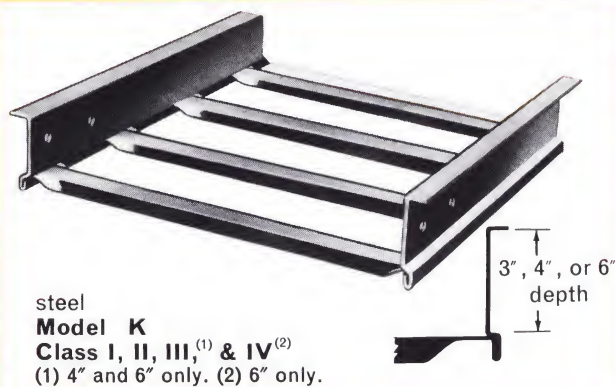
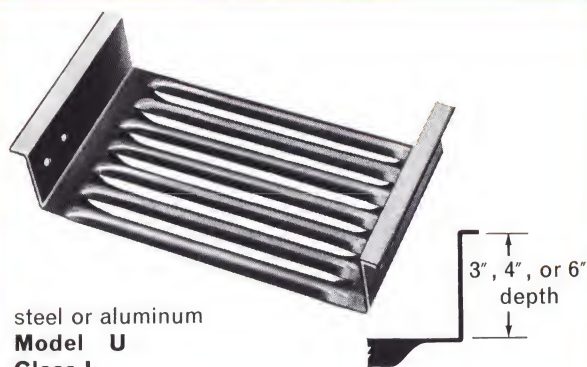
CABLE-STRUT tray dimensions

tray type	inside depth (in.)	inside width (in.)	standard length (ft.)	rung spacing (in.)
Ladder—Model K				
Steel or Alum.—Class I	3, 4, 6	6, 9*, 12, 18, 24, 30*, 36*	12	6, 9, 12, 18
Steel or Alum.—Class II	3, 4, 6	6, 9*, 12, 18, 24, 30*, 36*	12	6, 9, 12
Steel —Class III	4, 6	6, 9*, 12, 18, 24, 30*, 36*	12, 20*, 24	6, 9, 12
Aluminum —Class III	6	6, 9*, 12, 18, 24, 30*, 36*	12, 20*, 24	6, 9, 12
Steel —Class IV	6	6, 9*, 12, 18, 24, 30*, 36*	12, 20*, 24	6, 9
Aluminum —Class IV	6	6, 9*, 12, 18, 24, 30*, 36*	12, 20*, 24	6, 9, 12
Trough—Model U				
Steel or Alum.—Class I	3, 4, 6	3*, 4*, 6, 9*, 12, 18, 24, 30*	12	1
Trough—Model K				
Steel —Class I	3, 4, 6	6, 9*, 12, 18, 24, 30*	12	1
Aluminum —Class I	3, 4, 6	6, 9*, 12, 18, 24, 30*, 36*	12	5
Steel —Class II	3, 4, 6	6, 9*, 12, 18, 24, 30*	12	1
Aluminum —Class II	3, 4, 6	6, 9*, 12, 18, 24, 30*, 36*	12	5
Aluminum —Class III & IV	6	6, 9*, 12, 18, 24, 30*, 36*	12, 20*, 24	5
Solid Bottom				
Steel —Class II	3, 4, 6	3*, 4*, 6, 9*, 12, 18, 24, 30*, 36*	12	—

*These sizes are available in addition to all NEMA standard sizes listed.

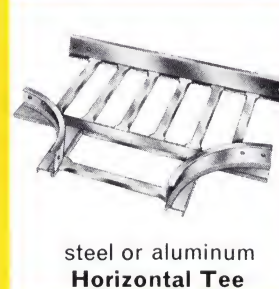
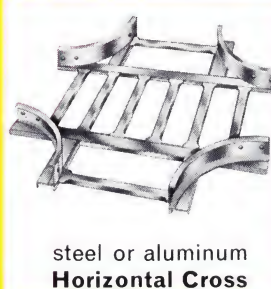
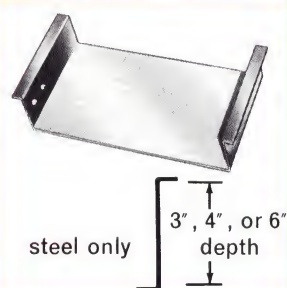
through type straight sections

ladder type straight sections



solid bottom
straight sections

fittings



specifications

Note to architect: "Specification Drawings" of cable tray products are available for use as slip sheets in preparing working or shop drawings. Ask your Metal Products Division representative for a set.

general

All cable tray continuous rigid cable support (CRCS) system shall be CABLE-STRUT (ladder) (trough) (solid bottom) type construction; (aluminum) (AISI C-1008 steel, hot-dip mill galvanized according to ASTM A525) (AISI C-1008 steel, hot-dip galvanized after fabrication according to ASTM A386); manufactured and tested in compliance with currently published NEMA (National Electrical Manufacturers Association) Cable Tray Standards VE-1. Trough, ladder and solid bottom types to be interchangeable. *Note: Insert specifications for features of tray type selected.*

mechanical properties

Straight sections shall be capable of supporting a cable load of — lbs. per lin. ft. on a — ft. simple span between supports [where applicable, NEMA Class (I), (II), (III), (IV) tray] where connectors are located within ¼ point of the span of tray.

When fittings are supported to minimum standards outlined in NEMA Standard VE 1 on ventilated cable tray, but with no span between supports exceeding that used for adjacent straight sections, the fittings shall be capable of supporting the same design load as straight sections.

Short time total loads on straight sections or fittings shall not exceed design load by more than one-third.

physical dimensions

The cable tray shall have a clear inside width, with top flanges turned out, of (3") (4") *trough only*; (6") (9") (12") (18") (24") (30") *trough, ladder or solid bottom type*; (36") *ladder type and solid bottom only*; (3") (4") (6") clear inside depth, and have rung spacing of (6") (9") (12") (18") *ladder type only*.

Fittings shall have rung spacing not to exceed 4 inches at maximum opening measured in a direction parallel to the cable for either trough or ladder type tray.

Fittings, both vertical and horizontal, shall have (8") (12") (24") (36") minimum radius.

electrical properties

Resistance between cable tray sections and fittings shall be less than .00033 ohms. All fastener heads inside tray shall be button-head design. All expansion or adjustable splices shall be equipped with a jumper cable.

Cable tray system shall be grounded in conformance with National Electrical Code, Section 250-33; however, in accordance with the NEC, Article 318, the CRCS system shall not be used either as a grounded circuit conductor or as an equipment grounding conductor.

The cable tray system shall be installed to conform to the requirements of NEC, Article 318.

covers and accessories

Covers and accessories supplied by the manufacturer shall be installed where indicated on the drawings. Solid bottom type tray section bottoms shall be aligned with "H" bars.

supports

Supports shall be in conformance with NEMA Standards and recommendations. Supports shall be capable of carrying required cable loads plus tray weight and any additional short time total loads not to exceed the design loads by more than one-third.

On vertical tray runs cable shall be held against thrust by supports external to tray.

manufacturer

Cable tray shall be as manufactured by Metal Products Division, United States Gypsum Company.

CABLE-STRUT Cable Tray Systems are available through distributors in principal cities. Consult our local representative for information, or write directly to: Metal Products Division, United States Gypsum Company, 101 So. Wacker Dr., Chicago, Ill. 60606.

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